

Service Manual

ViewSonic E95
Model No. VCDTS21755-1

***19" Digital Controlled Color Monitor
(18" viewable)***

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Revision History

Revision	Date	Description Of Changes	Approval
1.0	3/23/01	Initial Issue – DCN1288	T. Sears

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WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.

It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.

Products powered by electricity should be serviced or repaired only by experienced professional technicians.

Any attempt to service or repair the product or products dealt within this service information by anyone else could result in serious injury or death.

SAFETY PRECAUTIONS

1 CAUTION

No modification of any circuit should be attempted. Service work should only be performed after you are thoroughly familiar with all of the following safety checks and servicing guide lines.

2 SAFETY CHECK

Care should be taken while servicing this CRT display because of the high voltage used in the deflection circuits. These voltages are exposed in such areas as the associated flyback and yoke circuits.

3 FIRE & SHOCK HAZARD

- 3-1 Insert an isolation transformer between the CRT display and AC power line before servicing the chassis.
- 3-2 In servicing pay attention to original lead dress especially in the high voltage circuit. If a short circuit is found, replace all parts which have been overheated as a result of the short circuit.
- 3-3 All the protective devices must be reinstalled per original design.
- 3-4 Soldering must be inspected for possible cold solder joints, frayed leads, damaged insulation, solder splashes or sharp solder points. Be certain to remove all foreign material.

4 LEAKAGE CURRENT COLD CHECK

- 4-1 Unplug the AC cord and connect a jumper between the two prongs on the plug.
- 4-2 Turn the CRT display power switch "on".
- 4-3 Measure the resistance value with an ohmmeter between the jumpered AC plug and each exposed metallic part on the CRT display such as the metal frame, screwheads, control shafts, etc. When the exposed metallic part has a return path to the chassis, the reading should be 1.8 megohm minimum.

5 LEAKAGE CURRENT HOT CHECK

- 5-1 Plug the AC cord directly into the AC outlet. Do not use an isolation transformer during this check.
- 5-2 Connect a 1500 ohm, 10 watt resistor, paralleled by a 0.15μF capacitor between each exposed metallic part and a good earth ground(as shown in Fig.1).
- 5-3 Use an AC voltmeter with 1000 ohm/volt or more sensitivity and measure the AC voltage across the combination 1500 ohm resistor and 0.15μF capacitor.
- 5-4 Move the resistor connection to each exposed metallic part and measure the voltage.
- 5-5 Reverse the polarity of the AC plug in the AC outlet and repeat the above measurement.
- 5-6 Voltage measured must not exceed 7.5 volt RMS, from any exposed metallic part to ground. A leakage current tester may be used in the above hot check, in which case any current measured must not exceed 5.0 milliamp. In the case of a measurement exceeding the 5.0 milliamp value, a rework is required to eliminate the chance of shock hazard.

Note: High voltage is present when this CRT display is operating. Always discharge the anode of the picture tube to the display chassis to prevent shock hazard.

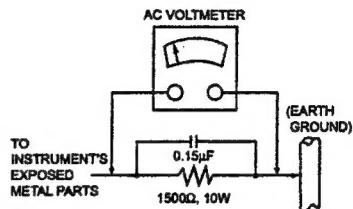


Fig. 1

6 IMPLOSION PROTECTION

Picture tubes are equipped with an integral implosion protection system, but care should be taken to avoid damage and scratching during installation.

7 X-RADIATION

WARNING : The only potential source of X-Radiation is the picture tube. However when the high voltage circuit is operating properly there is no possibility of X-Radiation problem. The basic precaution which must be exercised is to keep the high voltage at the following factory-recommended level.

Note: It is important to use an accurate periodically calibrated high voltage meter.

7-2 If high voltage cannot be set to 24kV, immediate service is required to prevent the possibility of premature component failure.

7-3 To prevent X-Radiation possibility it is essential to use the specified picture tube.

IMPORTANT SAFETY NOTICE

There are special components used in this CRT displays which are important for safety. These parts are identified by the international symbol on the schematic diagram and on the replacement parts list. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent X-RADIATION, shock, fire, or other hazards. Do not modify the original design or this will void the original parts and labor guarantee.

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E95-1 Engineering specification

1. Scope.

1.1 This specification defines the configuration and performance requirements for the ViewSonic corporation E95-1 family of computer monitor.

1.2 Product configuration/Magnetic requirements

E95-1

Model number	Location	Magnetic requirement
VCDTS21755-1M	North America	Bh=250mG±10mG,Bv=490mG±10mG
VCDTS21755-1E	Europe	Bh=250mG±10mG,Bv=430mG±10mG

2. Input requirements

2.1 AC power supply.

- 2.1.1 Power source : 90~264VAC, 50/60Hz.
- 2.1.2 Power consumption : Less than 130W (E95-1).
- 2.1.3 Inrush current : Less than 40A_{o-p} for 1/2 cycle on cold starting.
- 2.1.4 Input current : 3A max.
- 2.1.5 Leakage current : 0.75mA at AC 100V/240V.
- 2.1.6 Ripple / noise : Should not cause any visible interference.
- 2.1.7 Power cable / color : 1.83 meter / match with cabinet.
(R) M model : 3-prong NEMA 5-1 5P type plug
E model : Shuko CEE7-7

2.2 Video interface.

- 2.2.1 RGB video : Analog, 0.7V_{p-p}, positive, input impedance 75ohm.
- 2.2.2 Max PC video signal : 950mV with no damage to monitor.
- 2.2.3 Max MAC video signal : 1250mV with no damage to monitor.
- 2.2.4 Sync signal : Separate or composite horizontal and vertical sync (TTL level).
- 2.2.5 Signal cable / color : 1.83 meter ivory PC99 / match with cabinet.

2.2.5 Input connector :

15 pin mini "D" sub :

Pin No.	Signal	Pin No.	Signal
1	Red	9	NC
2	Green	10	Ground
3	Blue	11	Ground
4	Ground	12	SDA
5	Ground	13	H. Sync
6	R Return	14	V. Sync
7	G Return	15	SCL
8	B Return		

2.2.6 Signal memory modes : 13 preset modes

18 user modes, see **Appendix A**.

2.2.7 Plug & play : VESA DDC1 / 2B, DDC data **Appendix B.**

2.2.8 Input signal timing compatibility : VESA GTF

2.3 Scanning frequency.

- 2.3.1 Horizontal : 30KHz to 95KHz
- 2.3.2 Vertical : 50Hz to 180Hz

3. Adjustment control

3.1 User control.

3.1.1 Power switch.

3.1.2 OSD key.

- [1] : Function select button.
- ▽ : Adjustment button.
- △ : Adjustment button.
- [2] : Function select button.

3.2 OSD adjustment function.

- a. Contrast / Brightness.
- b. H. size / Position.
- c. V. Size / Position.
- d. Pincushion / Balance.
- e. Trapezoid / Parallel.
- f. Top / Bottom Hook
- g. Tilt.
- h. H / V Moire
- i. H / V Focus
- j. Input level
- h. Degauss.
- i. Viewmeter.
- j. Viewmatch color : 9300°K / 6500°K / 5000 °K User (R, G, B).
- k. Language.
- l. Memory recall.

3.3 LED indication.

Status		LED	
Power on	Normal		Green
	Power saving	Stand-by	Orange
		Suspend	
		Off mode	
Over range frequency		Orange	
Power off		Off	

4. Electrical specification.

A. Electrical specification.

4.1 Standard condition of measurement.

4.1.1 Brightness – 50% factory shipment condition.

4.1.2 Contrast – 100% factory shipment condition (MAX).

4.1.3 Preset color – 9300°K.

4.1.4 Brightness 30FL (Full white).

4.1.5 Warm up time – Start testing 30 minutes or more after power on.

4.1.6 Timing chart – Refer to **Appendix A**.

4.2 CRT specification.

Item	Spec
CRT	SAMSUNG: M46QCE261X112(A)(E95-1M) SAMSUNG: M46QCE261X112(TCO)(E95-1E)
Size	19 inch
Diagonal(Viewable area)	18 inch
Mask type	Shadow Mask
Pitch	0.26mm
Faceplate treatment	AGAS
Transmission percentage	49.8%

4.3 Power saving.

4.3.1 Power saving.

Status	Horizontal Sync.	Vertical Sync.	Power consumption	Power LED	Recovery time
Normal	Yes	Yes	< 130W	Green	N/A
Stand-by	No	Yes	< 15W	Orange	< 3 sec
Suspend	Yes	No	< 15W	Orange	< 3 sec
Off	No	No	< 3W	Orange	< 10 sec

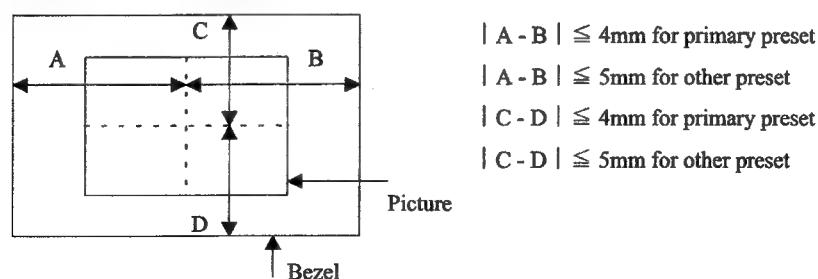
B. Screen characteristics.

4.4 Picture display size.

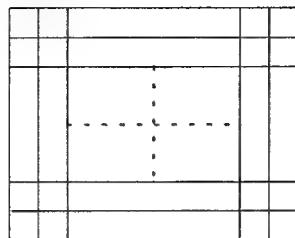
Horizontal size : 357 ± 4 mm (primary mode) / 357 ± 5 mm (other mode).

Vertical size : 268 ± 4 mm (primary mode) / 268 ± 5 mm (other mode).

4.5 Picture center.(Correctable to zero)



4.6 Linearity.



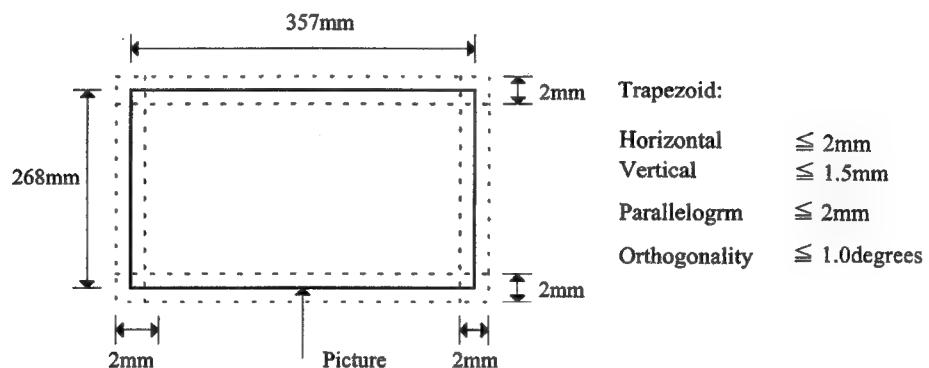
$$\text{H-Linearity : } \frac{X_{\max} - X_{\min}}{X_{\max} + X_{\min}} \times 100\% \begin{array}{l} \leq 4\% \text{ for adjacent} \\ \leq 5\% \text{ for worst case} \end{array}$$

$$\text{V-Linearity : } \frac{Y_{\max} - Y_{\min}}{Y_{\max} + Y_{\min}} \times 100\% \begin{array}{l} \leq 4\% \text{ for adjacent} \\ \leq 5\% \text{ for worst case} \end{array}$$

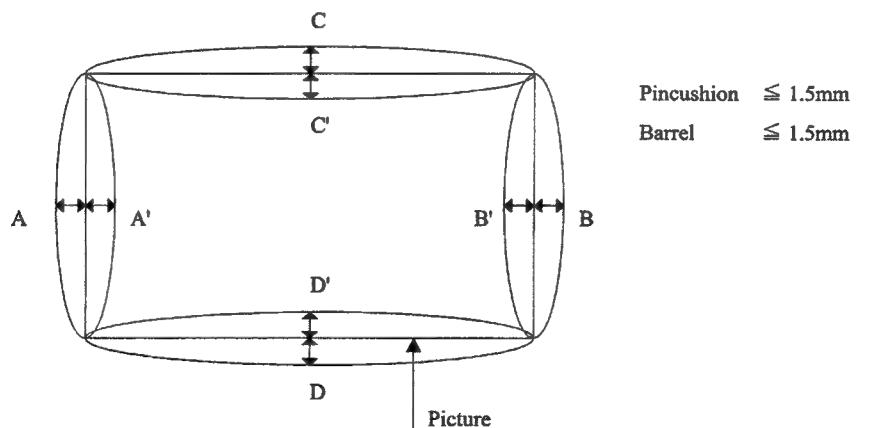
Input singal : Cross-hatch pattern
16x12

4.7 Picture distortion

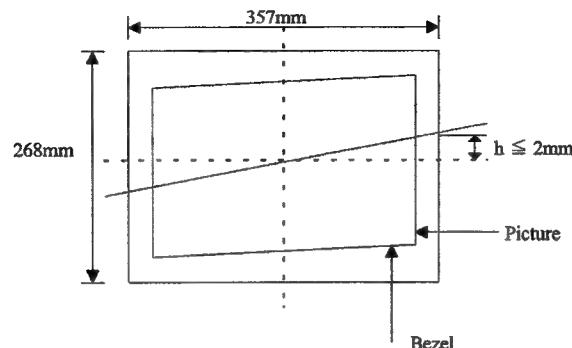
4.7.1 Trapezoid / Parallelogram / Orthogonality / 2mm Box.



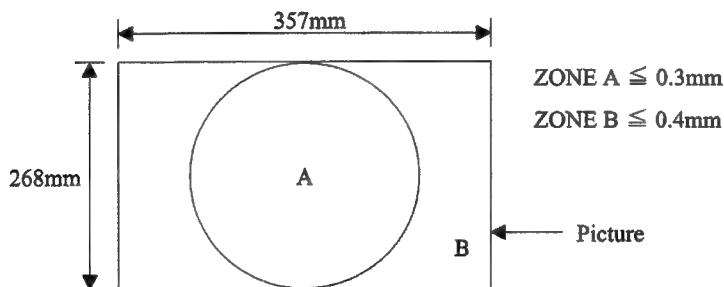
4.7.2 Pincushion / Barrel / Pin-balance.



4.7.3 Tilt.(adjustable to zero)



4.8 Misconvergence.



4.9 Focus.

4.9.1 Under the condition of brightness center and contrast maximum "mE", pattern can be seen clearly by using the 1024x768 60K/75Hz. If necessary, limit sample agreed by both parties will be made for final focus judgement.

4.10 Jitters : Less than 0.1mm.

4.11 White balance.

4.11.1	Color temperature :	Using the CIE color temperature coordinate system.
	Color 9300°K :	$x = 0.283 \pm 0.02$, $\Delta u' v' \leq 0.01$ $y = 0.297 \pm 0.02$.
	Color 6500°K :	$x = 0.313 \pm 0.02$, $\Delta u' v' \leq 0.01$ $y = 0.329 \pm 0.02$.
	Color 5000°K :	$x = 0.346 \pm 0.02$, $\Delta u' v' \leq 0.01$ $y = 0.359 \pm 0.02$.

4.11.2 Color tracking : When the full white pattern display at preset condition. (only for 9300°K)

$$\begin{aligned} |x_{25.75FL} - x_{10FL}| &\leq 0.007 \\ |x_{25.75FL} - x_{30FL}| &\leq 0.003 \\ |y_{25.75FL} - y_{10FL}| &\leq 0.007 \\ |y_{25.75FL} - y_{30FL}| &\leq 0.003 \end{aligned}$$

E95-1 Engineering specification

4.11.3 Video amplifier linearity, input step :

$$|x_{600mV} - x_{700mV}| \leq 0.007.$$

$$|y_{600mV} - y_{700mV}| \leq 0.003.$$

4.11.4 Color purity : Impurity should not appear in the pattern of all green, all red, or all white.

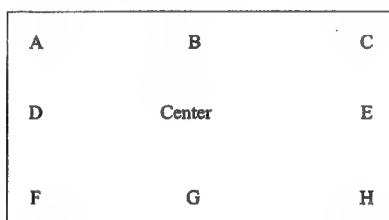
4.12 Light output.

4.12.1 At 70mm x 70mm white block pattern : 40 ± 4 FL.

4.12.2 At full-white pattern : 30 ± 2 FL.

4.13 Brightness uniformity.

4.13.1 25% deviation maximum between center any eight points within the display picture.



4.14 Image regulation.

4.14.1 Static regulation ≤ 1 mm.

4.14.2 Dynamic regulation ≤ 1 mm.

4.14.3 Temperature and line voltage $\leq 0.5\%$ of line length.

5. Environmental conditions.

5.1 Temperature and humidity at operation : 0°C ~40°C.
5% ~ 95% RH (Non condensing).

5.2 Temperature and humidity at storage : -40°C ~ 60°C.
5 ~ 95% RH (Non condensing).

5.3 Vibration test (packaged) :
Vibration Frequency : 5 ~ 250Hz.
Acceleration : 1G.
Sweep time : 1 oct. / min.
Test time : 60 min per axis.

5.4 Drop test (packaged) : 70cm height.
1 corner, 3 edges, 6 faces.

5.5 Altitude :
Operating : 0 ~ 3000 feet.
Non-operating : 0 ~ 12000 feet.

6. Physical specification.

6.1 Dimension. E95-1
Height 463.8mm
Width 448mm
Depth 463mm
Footprint width 260mm
Footprint depth 255mm
Monitor weight 19.5Kg

6.2 Mechanical adjustment.
Tilt - 5 / + 15 degrees.
Swivel ± 90 degrees.

6.3 Packaging.

6.3.1 Carton dimension.

Model	E95-1
Height	526mm
Width	568mm
Depth	588mm

6.3.2 Shipping weight : 23Kg
6.3.3 Container loading ; 320units

7. Manuals and documentation

7.1 Inserted materials :

Production sample of the User's Guide ,Rear Label and all other Inserted Materials will be provided to ViewSonic for approval before mass production.

8. Regulatory and Safety

8.1 North America

Model name : E95-1M

UL1950 ; CUL ; DHHS 21 CFR, Subchapter J ; FCC part 15, class B ; ICES-003, class B ; CB ; MPRII ; TUV/S (Argentina) ; NOM.

8.2 International

Model name : E95-1E

UL1950 : CUL : DHHS part 21 CFR, Subchapter J : FCC part 15, class B : ICES-003, class B : CB : CE : MPRII : TCO99 : TUV/GS : TUV/Ergo : NEMKO : SEMKO : DEMKO : FEMKO : PCT : B-Mark.

8.3 Power Management

EPA (Energy star) : E2000 (off state < 3 watts)

9. Video communications

9.1 EDID Standard and Structure

VESA's EDID Standard Version #3, Revision #0, EDID Structure Version #1.3, Revision #1.

9.2 EDID Vendor Name

VSC: Byte 8 – 5Ah, Byte 9 – 63h.(E95)

9.3 EDID Product ID

The shall be encoded as an ASCII representation of the first two digits of the North American serial number.

Byte 10 = 04h, Byte 11 = 90h (E95)

9.4 EDID Established Timing

Shall match with the factory timing settings specified by ViewSonic above in section 6.0.

9.5 Approvals

File contents shall be approved by ViewSonic prior to Mass Production Release.

9.6 USB(Optional)

A High Speed Active (one upstream port and four downstream ports) Hub shall be quoted as an option. The USB cable supplied with the unit shall be two meters long. A Host on Screen Display, based on ViewSonic Screens, compatible with Microsoft Windows 95 "4.00.950 B" and Windows 98, shall be supplied.

10. Coding assignment

10.1 Product Name and Model Number.

Product Name : View Sonic E95

North America Model Number VCDTS21755-1M

Europe Model Number VCDTS21755-1E

10.2 Serial Number Format

PPPYYWWnnnnn where

PPP = Regional Product ID Code

YY = Last digit of manufacturing year

WW = Manufacturing week

Nnnnn = Production sequence number

(Assigned by factory)

10.3 Regional Product ID code

Model name : E95

North America ID Code: 31V

Europe ID Code: 324

10.4 UPC coding

Model name : E95

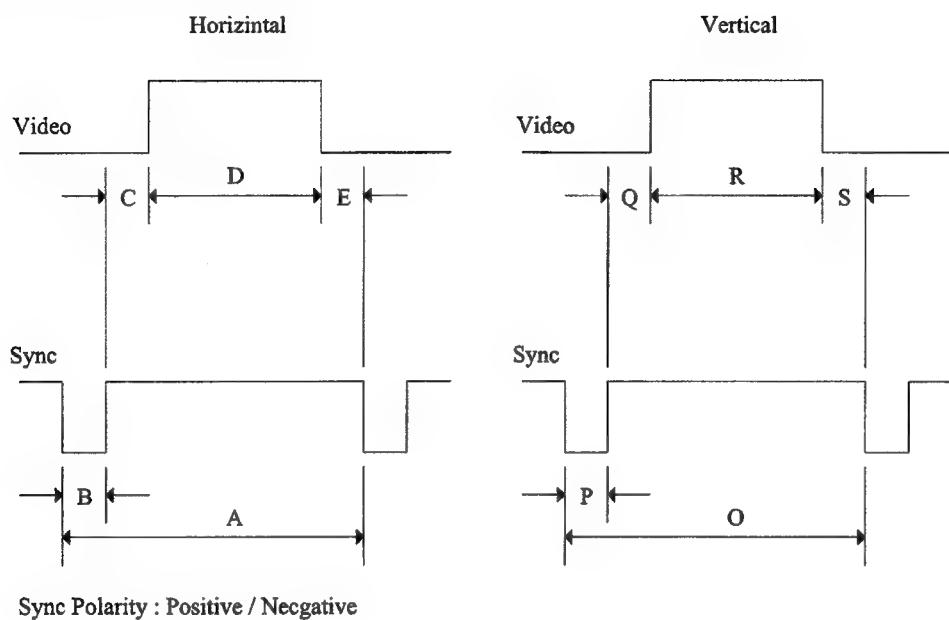
North America UPC Code: 7 66907 43523 8

Europe UPC Code: 7 66907 44281 6

10.5 FCC ID code

Self-Declared

Appendix A : Factory preset timings.



Timing chart : E95-1

Mode No.	1	2	3	4	5	6	7	8	9	10
Mode Name	VGA 640 x 400	VGA 640 x 480	VGA 640 x 480	VESA 800 x 600	VESA 800 x 600	VESA 1024 x 768	VESA 1024 x 768	VESA 1280 x 1024	VESA 1280x 1024	VESA 1280x 1024
Horizontal Freq. (KHz)	31.469		37.500	46.875	53.674	60.023	68.677	63.981	79.976	91.146
Sync. Polarity	-	-	-	+	+	+	+	+	+	+
A H. total(us) (Dots)	31.778 (800)	26.666 (840)	21.333 (1056)	18.631 (1048)	16.660 (1312)	14.561 (1312)	15.63 (1688)	12.504 (1688)	10.971 (1728)	
B H. sync(us) (Dots)	3.813 (96)	2.032 (64)	1.616 (80)	1.138 (64)	1.219 (96)	1.016 (96)	1.037 (112)	1.067 (144)	1.061 (160)	
C H. back porch(us) (Dots)	1.907 (48)	3.809 (120)	3.232 (160)	2.702 (152)	2.235 (176)	2.201 (208)	2.296 (248)	1.837 (248)	1.422 (224)	
D H. active(us) (Dots)	25.422 (640)	20.317 (640)	16.162 (800)	14.222 (800)	13.003 (1024)	10.836 (1024)	11.852 (1280)	9.481 (1280)	8.127 (1280)	
E H. front porch(us) (Dots)	0.636 (16)	0.508 (16)	0.323 (16)	0.569 (32)	0.203 (16)	0.508 (48)	0.444 (48)	0.119 (16)	0.406 (64)	
Vertical Freq. (Hz)	70.089	59.940	75.000	75.000	85.000	75	85.000	60.200	75.025	85.024
Sync. Polarity	+	-	-	+	+	+	+	+	+	+
O V. total(ms) (Lines)	14.268 (449)	16.684 (525)	13.333 (500)	13.333 (625)	11.756 (631)	13.853 (666)	11.765 (808)	16.661 (1066)	13.329 (1066)	11.761 (1072)
P V. sync(ms) (Lines)	0.064 (2)	0.064 (2)	0.080 (3)	0.064 (3)	0.056 (3)	0.125 (6)	0.044 (3)	0.047 (3)	0.038 (3)	0.033 (3)
Q V. back porch(ms) (Lines)	1.112 (35)	1.048 (33)	0.426 (16)	0.448 (21)	0.503 (27)	0.478 (23)	0.524 (36)	0.594 (38)	0.475 (38)	0.483 (44)
R V. active(ms) (Lines)	12.711 (400)	15.254 (480)	12.800 (480)	12.800 (600)	11.179 (600)	12.480 (600)	11.183 (768)	16.005 (1024)	12.804 (1024)	11.235 (1024)
S V. front porch(ms) (Lines)	0.381 (12)	0.381 (10)	0.027 (1)	0.021 (1)	0.019 (1)	0.770 (37)	0.015 (1)	0.016 (1)	0.013 (1)	0.011 (1)
Video clock Freq. (MHz) (ns)	25.175 (39.72)		31.501 (31.7)	49.500 (20.2)	56.250 (17.78)	56.250 (17.78)	94.500 (10.58)	108.00 (9.26)	135 (7.4)	157.5 (6.3)

Timing chart : E95-1

Mode No.	11	12	13
Mode Name	VESA 1600x 1200	MAC 832 x 624	MAC 1152X 870
Horizontal Freq. (KHz)	93.75	49.717	68.681
Sync. Polarity	+	-	-
A H. total(us) (Dots)	10.667 (2160)	20.115 (1152)	14.56 (1456)
B H. sync(us) (Dots)	0.948 (192)	1.118 (64)	1.280 (128)
C H. back porch(us) (Dots)	1.501 (304)	3.911 (224)	1.44 (144)
D H. active(us) (Dots)	7.901 (1600)	14.528 (832)	11.52 (1152)
E H. front porch(us) (Dots)	0.316 (64)	0.558 (32)	0.32 (32)
Vertical Freq. (Hz)	75	74.530	75
Sync. Polarity	+	-	-
O V. total(ms) (Lines)	13.333 (1250)	13.417 (667)	13.322 (915)
P V. sync(ms) (Lines)	0.032 (3)	0.060 (3)	0.044 (3)
Q V. back porch(ms) (Lines)	0.491 (46)	0.784 (39)	0.568 (39)
R V. active(ms) (Lines)	12.8 (1200)	12.552 (624)	12.667 (870)
S V. front porch(ms) (Lines)	0.011 (1)	0.021 (1)	0.044 (3)
Video clock Freq. (MHz) (ns)	202.5 (4.9)	57.270 (17.5)	100 (10)

Appendix B :

VIEWSONIC CORPORATION
EDID Version # 1, Revision # 3
DDC Test For: VSC E95

128 bytes of EDID code.

	0	1	2	3	4	5	6	7	8	9
0	00	FF	FF	FF	FF	FF	FF	00	5A	63
10	04	90	01	01	01	01	01	0B	01	03
20	1D	25	1B	BA	EB	5E	88	A3	53	46
30	98	24	11	48	4C	FF	FF	80	81	8F
40	61	59	45	59	71	4F	81	59	81	99
50	A9	40	A9	4F	BC	34	00	98	51	00
60	2A	40	10	90	13	00	65	0C	11	00
70	00	1E	00	00	00	FF	00	33	31	56
80	30	31	30	31	30	30	30	30	31	0A
90	00	00	00	FD	00	32	B4	1E	5F	14
100	00	0A	20	20	20	20	20	20	00	00
110	00	FC	00	45	39	35	0A	20	20	20
120	20	20	20	20	20	00	7E			

(08-09) ID Manufacturer Name _____ = VSC
(10-11) Product ID Code _____ = 0490
(12-15) Last 5 Digits of Serial Number _____ = Not Used
(16) Week of Manufacture _____ = 01
(17) Year of Manufacture _____ = 2001
(10-17) Complete Serial Number _____ = See Descriptor Block
(18) EDID Version Number _____ = 1
(19) EDID Revision Number _____ = 3
(20) VIDEO INPUT DEFINITION:
Analog Signal
0.700, 0.300 (1.000 Vp-p)
Blank-to-Black Setup, Separate Syncs, Composite Sync,
Serration of the Vsync
(21) Maximum Horizontal Image Size _____ = 370mm
(22) Maximum Vertical Image Size _____ = 270mm
(23) Display Gamma _____ = 2.86
(24) Power Management and Supported Feature(s):
Stand-By, Suspend, Active Off/Very Low Power,
Preferred Timing mode, Default GTF Supported
Display Type = R/G/B Color

(25-34) CHROMA INFO:

Red X - 0.638 Green X - 0.276 Blue X - 0.143 White X - 0.283
Red Y - 0.325 Green Y - 0.596 Blue Y - 0.066 White Y - 0.297

(35) ESTABLISHED TIMING I:

720 X 400 @ 70Hz (IBM,VGA)
720 X 400 @ 88Hz (IBM,XGA2)
640 X 480 @ 60Hz (IBM,VGA)
640 X 480 @ 67Hz (Apple, Mac II)
640 X 480 @ 72Hz (VESA)
640 X 480 @ 75Hz (VESA)
800 X 600 @ 56Hz (VESA)
800 X 600 @ 60Hz (VESA)

(36) ESTABLISHED TIMING II:

800 X 600 @ 72Hz (VESA)
800 X 600 @ 75Hz (VESA)
832 X 624 @ 75Hz (Apple, Mac II)
1024 X 768 @ 87Hz(Interlaced 8514a, IBM)
1024 X 768 @ 60Hz (VESA)
1024 X 768 @ 70Hz (VESA)
1024 X 768 @ 75Hz (VESA)
1280 X 1024 @ 75Hz (VESA)

(37) Manufacturer's Reserved Timing:

1152 X 870 @ 75Hz (Apple, Mac II)

(38-53) Standard Timing Identification:

1280 X 1024 @75Hz
1024 X 768 @85Hz
800 X 600 @85Hz
1152 X 864 @75Hz
1280 X 960 @85Hz
1280 X 1024 @85Hz
1600 X 1200 @60Hz
1600 X 1200 @75Hz

(54-71) Detailed Timing / Descriptor Block 1:

1280x1024 Pixel Clock: 135MHz

Horizontal Image Size	: 357 mm	Vertical Image Size: 268 mm
Refreshed Mode	: Non-Interlaced	Normal Display - No Stereo

Horizontal:

Active Time	: 1280 pixels	Blanking Time: 408 pixels
Sync Offset	: 16 pixels	Sync Pulse Width: 144 pixels
Border	: 0 pixels	Frequency: 79.98KHz

E95-1 Engineering specification

Vertical:

Active Time	: 1024 lines	Blanking Time: 42 lines
Sync Offset	: 1 lines	Sync Pulse Width: 3 lines
Border	: 0 lines	Frequency: 75.02 Hz

Digital Separate, Horizontal Polarity (+) Vertical Polarity (+)

(72-89) Detailed Timing / Descriptor Block 2:

Monitor Serial Number:
31V010100001

(90-107) Detailed Timing / Descriptor Block 3:

Monitor Range Limits:
Min Vertical Freq - 50Hz
Max Vertical Freq - 180Hz
Min Horiz. Freq - 30KHz
Max Horiz. Freq - 95KHz
Pixel Clock - 200MHz
Secondary GTF - Not Supported

(108-125) Detailed Timing / Descriptor Block 4:

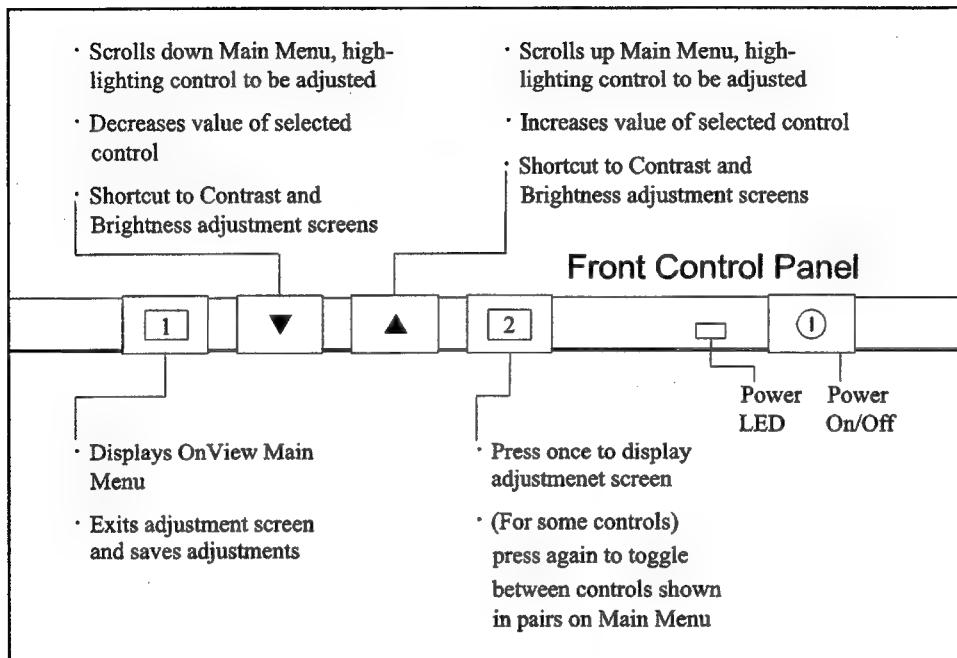
Monitor Name:
E95

(126) No Extension EDID Block(s)
(127) Checksum OK

2. OSD (on screen display) Function Control

- Main Menu 1
 - Contrast / Brightness
 - H. size / Position
 - V. size / Position
 - Pincushion / Balance
 - Trapezoid / Parallel
 - Top /Bottom Hook
 - H / V Focus
 - Tilt
- Main Menu 2
 - Degauss
 - H/V Moire
 - Viewmatch color
 - Video Level
 - Language
 - OSD Position
 - Viewmeter
 - Memory Recall

Front Control Panel for E95-1



Using the Front Control Panel to access OnView screens

1. To turn the monitor on, press the Power button (shown above).
2. To display to OnView Main Menu, press button [1].
3. To select a user control, press the ▼ or ▲ button repeatedly until the control is **High lighted**.
4. To display an OnView adjustment screen, press button [2].
Some controls are grouped in pairs on the Main Menu (see page 12). Press button [2] to toggle between them.
5. To adjust the selected user control, press the ▼ or ▲ button.
Exception: For user controls that do not require adjustments, press button [2] again to activate. (examples: Degauss, Memory Recall).
6. To save your adjustments and exit all screens, press button [1] twice.
The screen will clear automatically about 30 seconds after the last control button you press. To return to the Main Menu, repeat step 2.

- BLANK PAGE -

  **H. SIZE/POSITION:**

With H.SIZE/POSITION highlighted on the menu, press button [2] again to toggle between HORIZONTAL SIZE and HORIZONTAL POSITION.

  **HORIZONTAL SIZE**

Adjusts the width of the screen image. [\blacktriangle] increases width. [\blacktriangledown] decreases width.

  **HORIZONTAL POSITION**

Moves the screen image left or right. [\blacktriangle] moves the screen image right. [\blacktriangledown] moves the screen image left.

  **V. SIZE/POSITION:**

With V.SIZE/POSITION highlighted on the menu, press button [2] again to toggle between VERTICAL SIZE and VERTICAL POSITION.

  **VERTICAL SIZE**

Adjusts the height of the screen image. [\blacktriangle] increases the screen height. [\blacktriangledown] decreases the screen height.

  **VERTICAL POSITION**

Moves the screen image up and down. [\blacktriangle] moves the screen up. [\blacktriangledown] moves the screen down.

  **PINCUSHION / BALANCE**

With PINCUSHION/BALANCE highlighted on the menu, Press button [2] again to toggle between pincushion and Pin-balance.

  **PINCUSHION**

Straightens the vertical sides of the screen image. [\blacktriangle] curves the vertical sides outward. [\blacktriangledown] curves the vertical sides inward.

  **PIN-BALANCE**

Straightens the vertical sides of the screen image. [\blacktriangle] curves the vertical sides to left. [\blacktriangledown] curves the vertical sides to right.

  **TRAPEZOID/PARALLEL:**

With TRAPEZOID/PARALLEL highlighted on the menu, press button [2] again to toggle between TRAPEZOID and PARALLELOGRAM.

  **TRAPEZOID**

Makes a vertical side of the screen image parallel. [\blacktriangle] widens the top and narrows the bottom. [\blacktriangledown] narrows the top and widens the bottom.

  **PARALLEL (PARALLELOGRAM)**

Slants vertical edges of the screen to the left or right. [\blacktriangledown] slants vertical edges to left, [\blacktriangle] slants vertical edges to right.

E95-1 OSD (on screen display) function control method

TOP /BOTTOM HOOK

With TOP HOOK highlighted on the menu, Press button [2] again to toggle between top hook and bottom hook

TOP HOOK

Straights the top corners of the screen image. [**▼**] or [**▲**] to adjust.

BOTTOM HOOK

Straights the bottom corners of the screen image. [**▼**] or [**▲**] to adjust.



H. / V. FOCUS

H. FOCUS fine tunes the horizontal line focus only. Press [**▼**] or [**▲**] to adjust

V. FOCUS fine tunes the vertical line focus only. Press [**▼**] or [**▲**] to adjust



TILT

Rotates the entire screen image. [**▲**] rotates the screen clockwise, [**▼**] rotates the screen counter-clockwise.

Main Menu, Part 2



DEGAUSS

Removes the build-up of magnetic fields that can affect color purity and convergence. Press the button [2] to degauss.



H/V MOIRE

With H/V moire highlighted on the menu, Press button [2] again to toggle between H-moire and V-moire.

H MOIRE

The control adjusts for horizontal lines caused by interference between the CRT and focus gun. [**▼**] decrease the amount of adjustment, [**▲**] increases the amount of adjustment.

V MOIRE

The control adjust for vertical lines caused by interference between the CRT and focus gun. [**▼**] decrease the amount of adjustment, [**▲**] increases the amount of adjustment.

E95-1 OSD (on screen display) function control method



VIEWMATCH COLOR

Provides three color control options including two preset color temperatures. Press button [2] to select a color temperature or **USER**.

9300K

Is the factory setting that is most popular for this monitor. 9300K adds blue to the screen image for a cooler white used in most office settings with fluorescent lighting.

6500K

Adds red to screen image for warmer white and richer, more vibrant red.

5500K

Adds green to screen image for a darker color.

USER

Control adjusts reds, greens, and blues on the screen image to meet your personal preference. With the **USER** control screen display, press button [2] to select R, G or B. Then, press [**▲**] to increase and [**▼**] to decrease the color intensity.

VIDEO LEVEL

Allows you to change the video input signal level to match the signal coming from your computer. Press [**▼**] or [**▲**] to select 0.7V or 1.0V.



LANGUAGE

Of the MAIN MENU and the control screens. Use [**▲**] and [**▼**] to select English, French, German, Italian, or Spanish.



OSD POSITION

With OSD position highlighted on the menu, Press button [2] again to toggle between H-OSD position and V-OSD position.



VIEWMETER

Screen by ViewSonic displays the current horizontal and vertical synchronization signal (refresh rate) coming from your computer. To adjust these values, see the graphic's card user's guide for your computer.



MEMORY RECALL

Returns adjustments back to factory settings only if the monitor is operating in a factory preset mode.

Exception:

This control does not affect changes made with the **USER** color control.

E95-1 OSD (on screen display) function control method

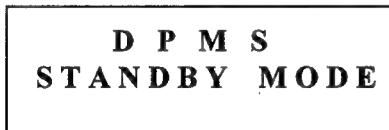
Model name: ViewSonic E95-1

OSD Diagnostic Message Formats

1. When power is applied, but there is no input signal, the following is displayed:



2. If the monitor is in the DPMS mode, the following is displayed:



3. If the H-sync or V-sync inputs are out of range, the following is displayed:

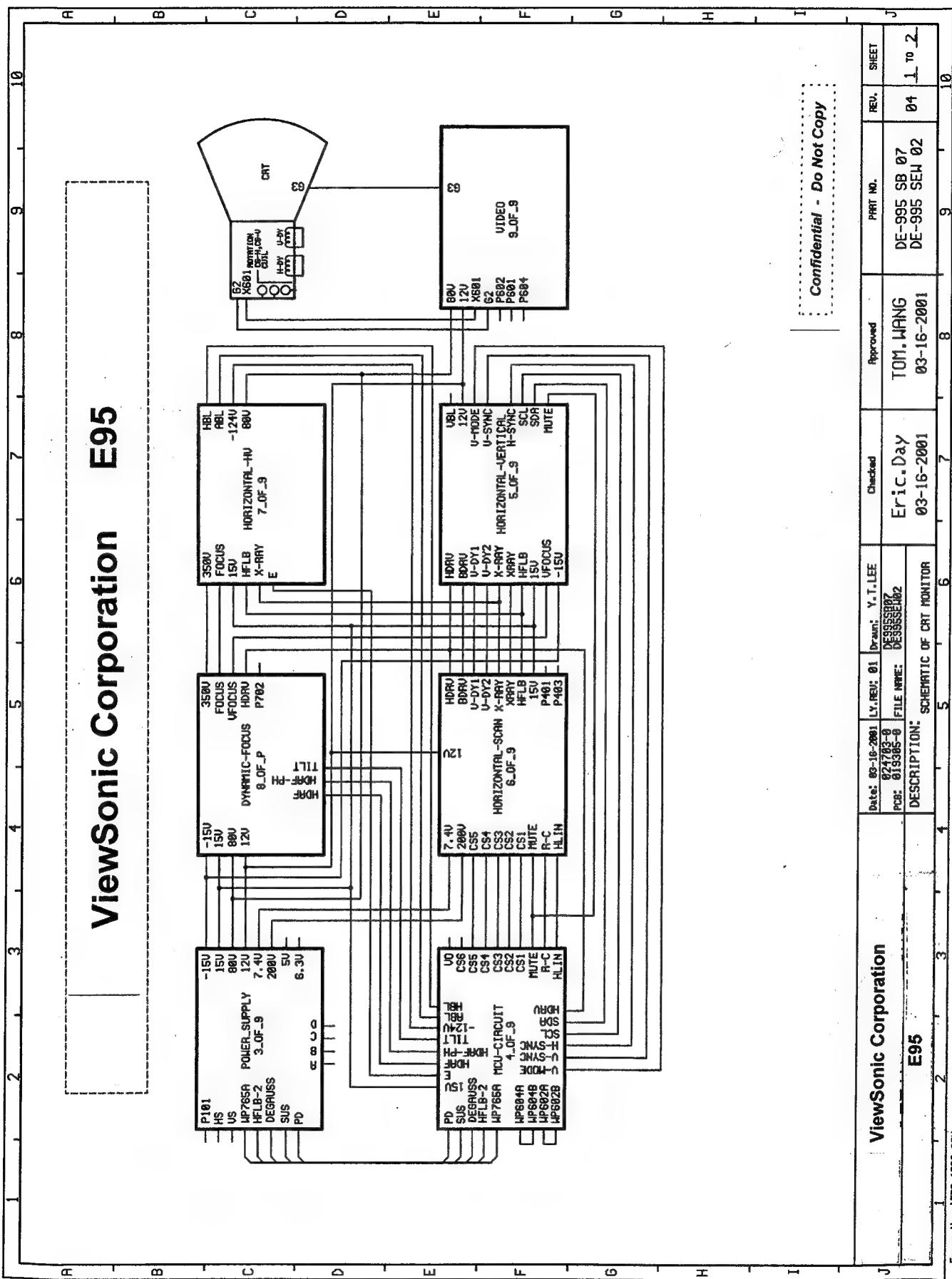


E95-1 circuit diagram

3. Circuit diagram

1. E95-1 circuit diagram

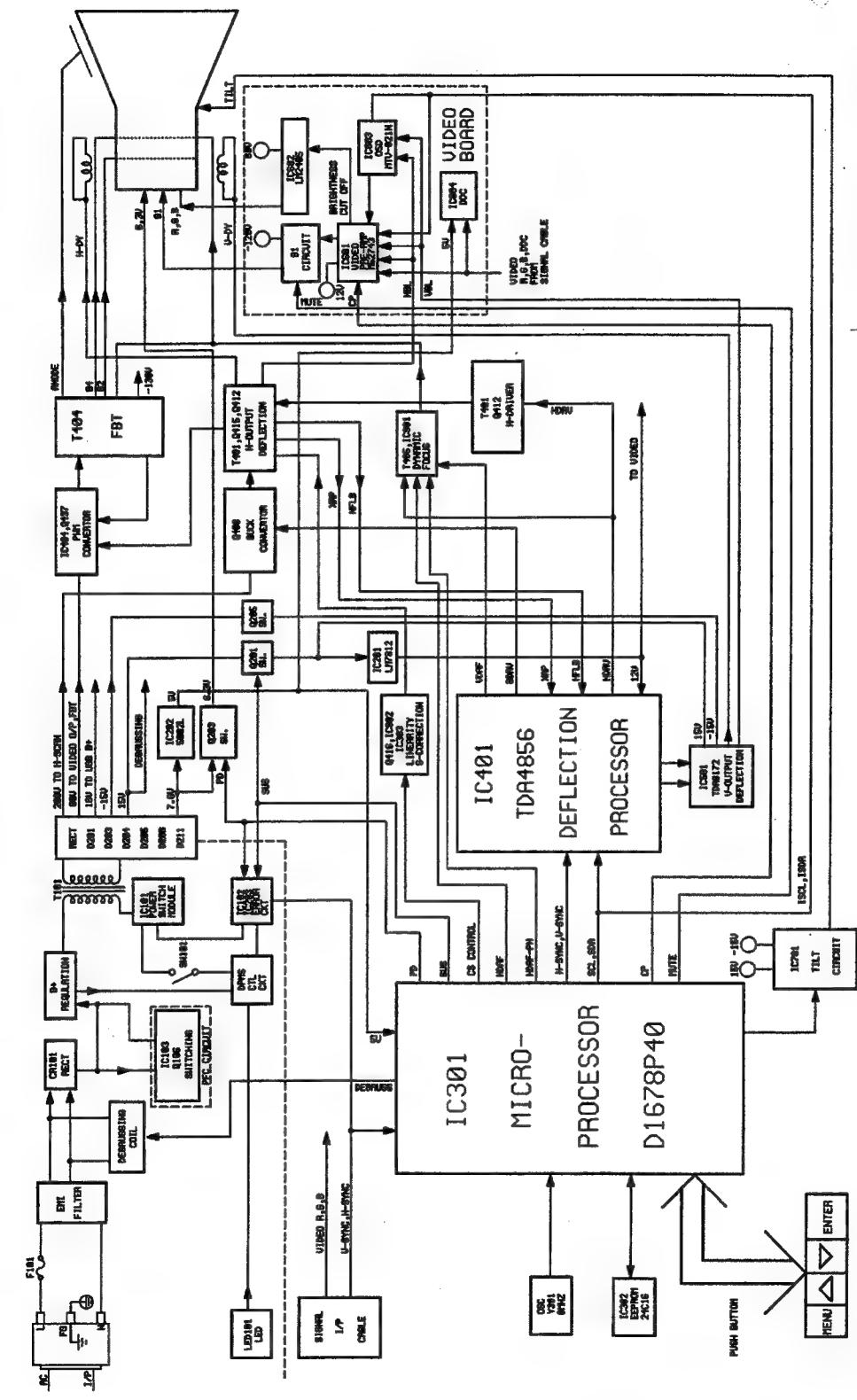
ViewSonic Corporation E95



Confidential - Do Not Copy

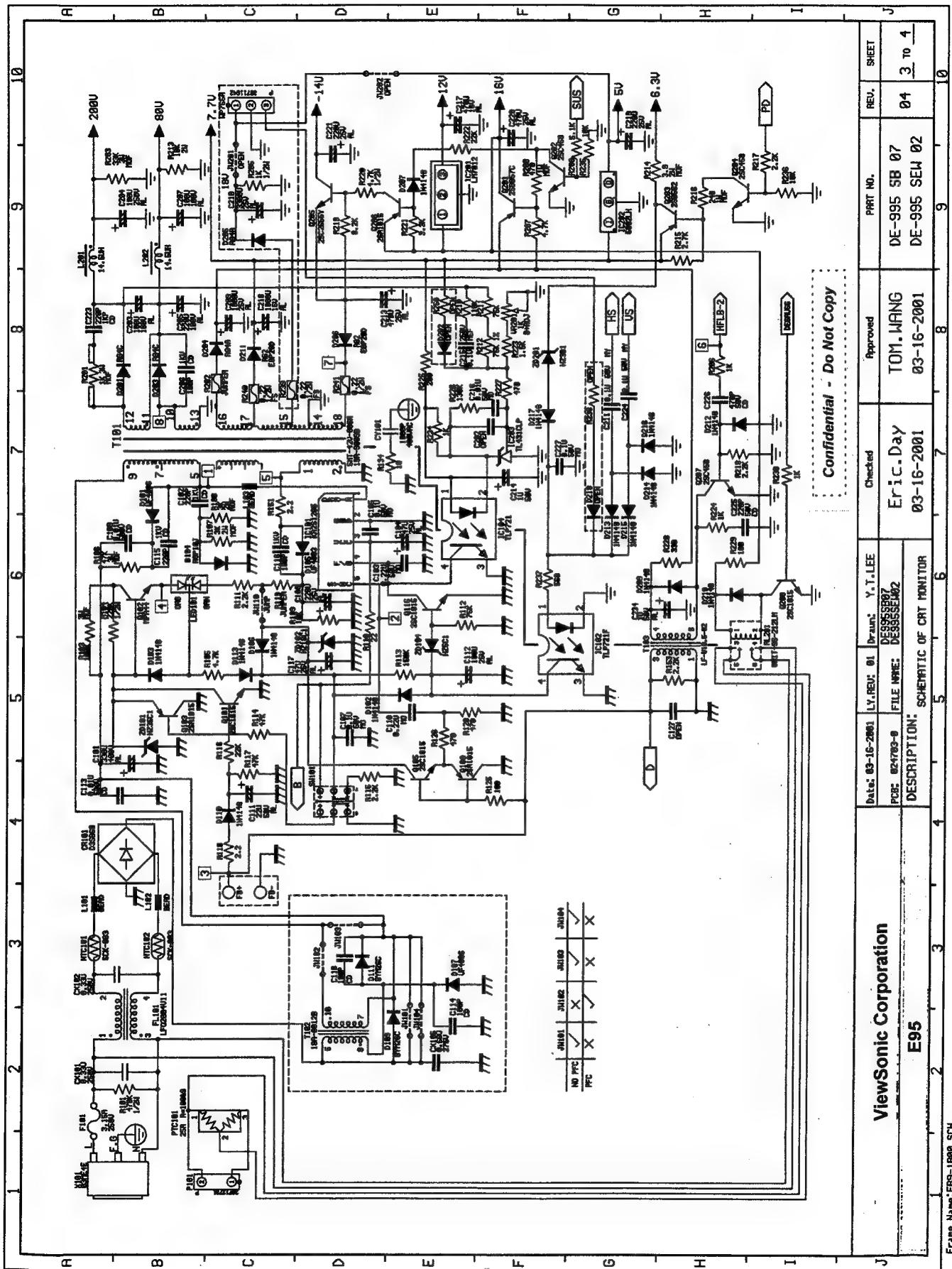
ViewSonic Corporation		Date: 03-16-2001	REV: 01	Drawn: Y.-T. LEE	Checked	Approved	PART NO.	REV.	SHEET
E95		PCB: 013305-0	FILE NAME: DESS95-E95	DESS95-E95	Eric Day	TOM.WANG	DE-995 SB 07	04	1 to 2
		DESCRIPTION:		SCHEMATIC OF CRT MONITOR		03-16-2001	DE-995 SEM 02		
1	2	3	4	5	6	7	8	9	10

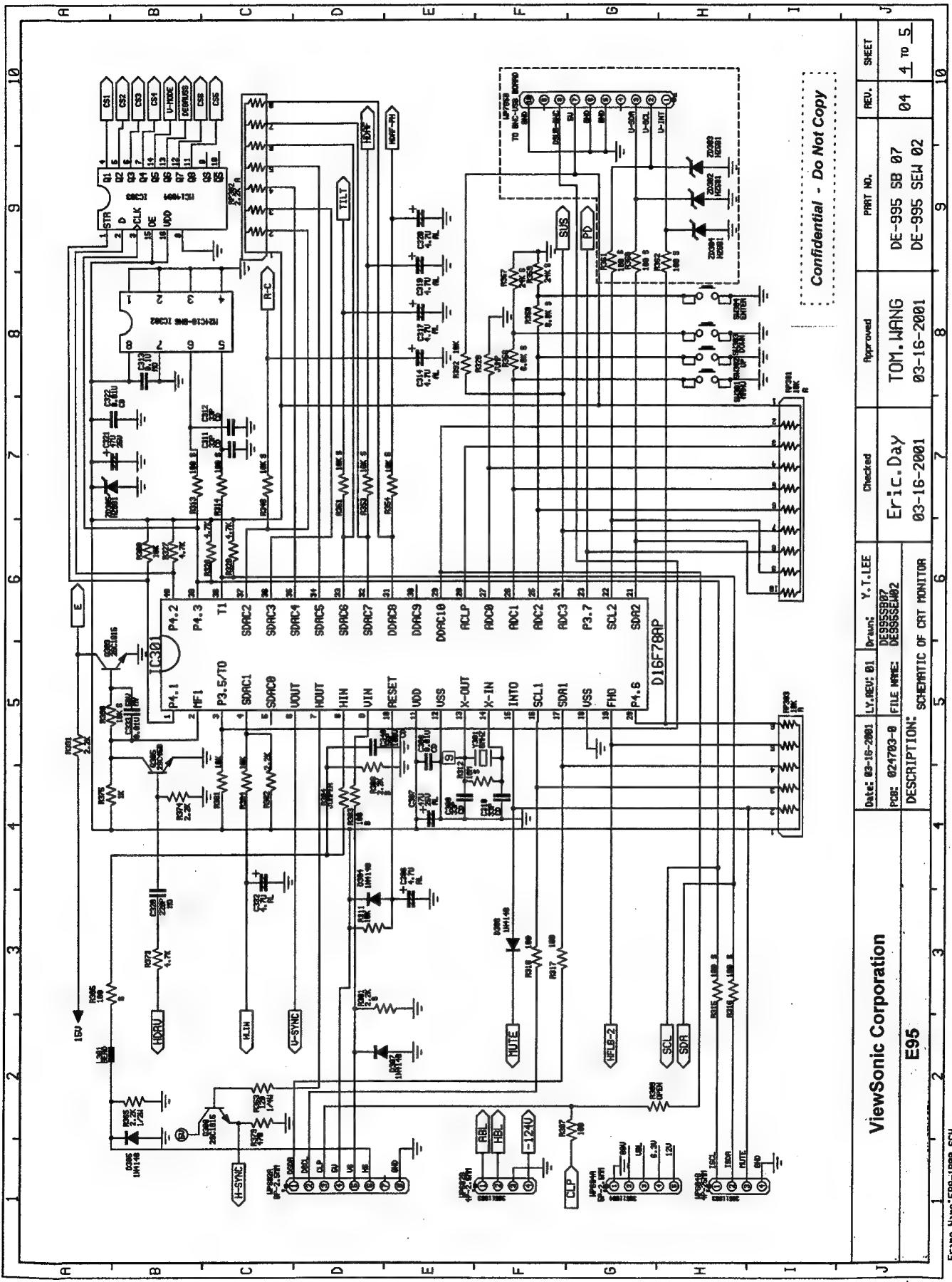
E95 COLOR MONITOR BLOCK DIAGRAM

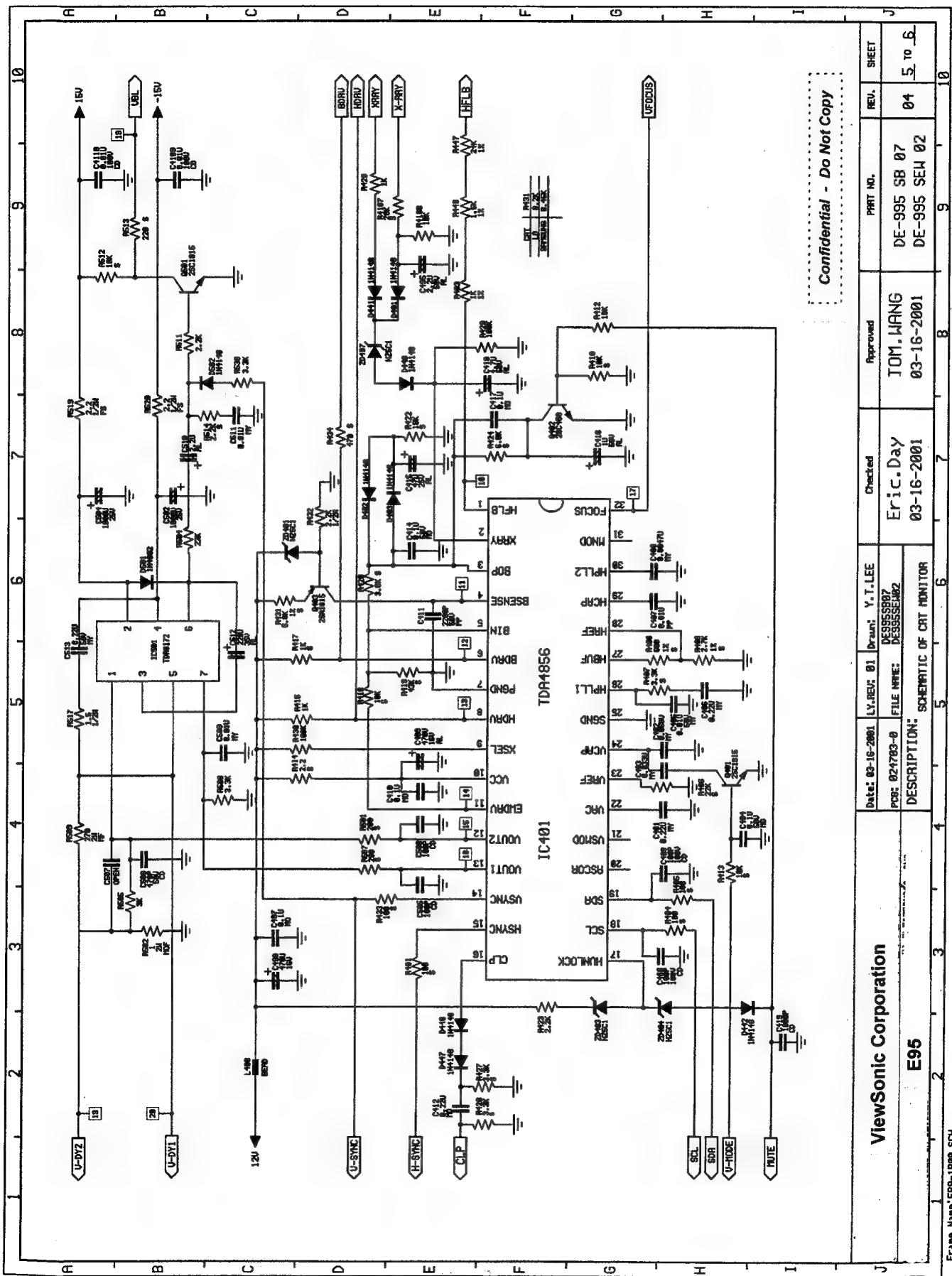


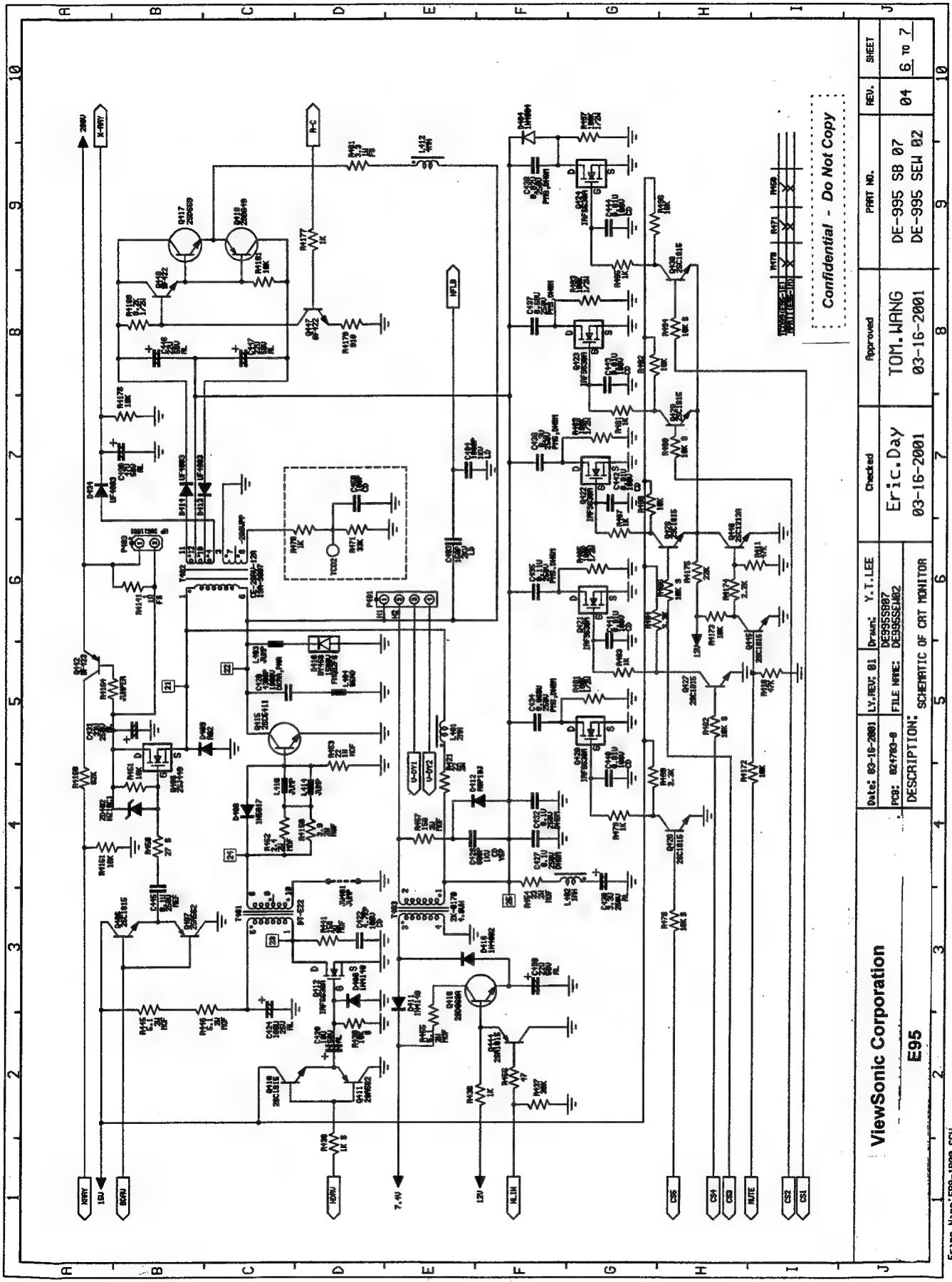
Confidential - Do Not Copy

ViewSonic Corporation		Date: 03-16-2001	Rev.: 01	Approved	Print No.	Sheet
Frame Name:FR8-1R80.SCH		Rev.: 01	Y. T. LEE	Eric Day	DE-995 SB 07	J
File Name: DE95SB07		Rev.: 02	DE95SE02	03-16-2001	DE-995 SEW 02	I
1	2	3	4	5	6	7
8	9	10				





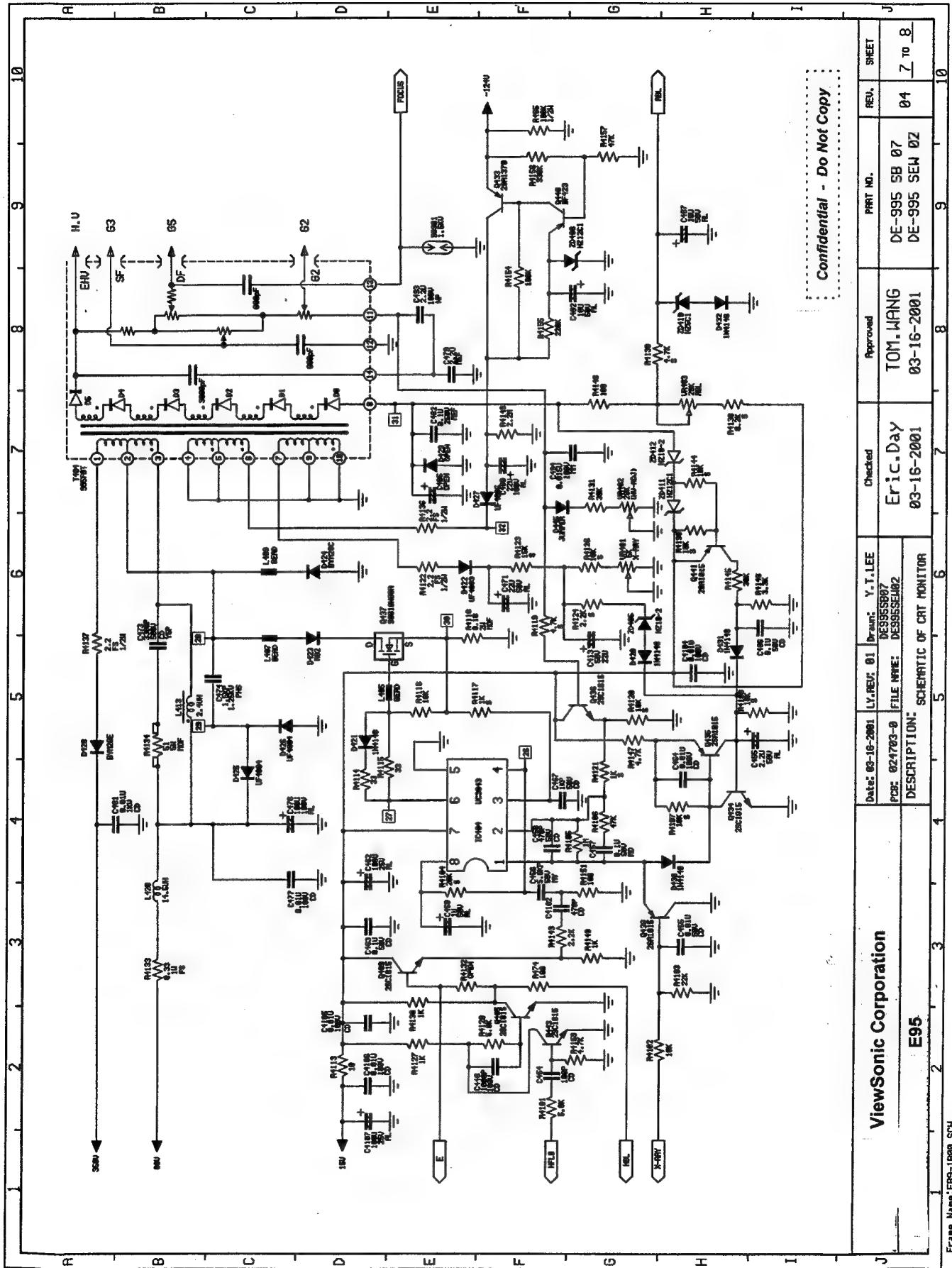


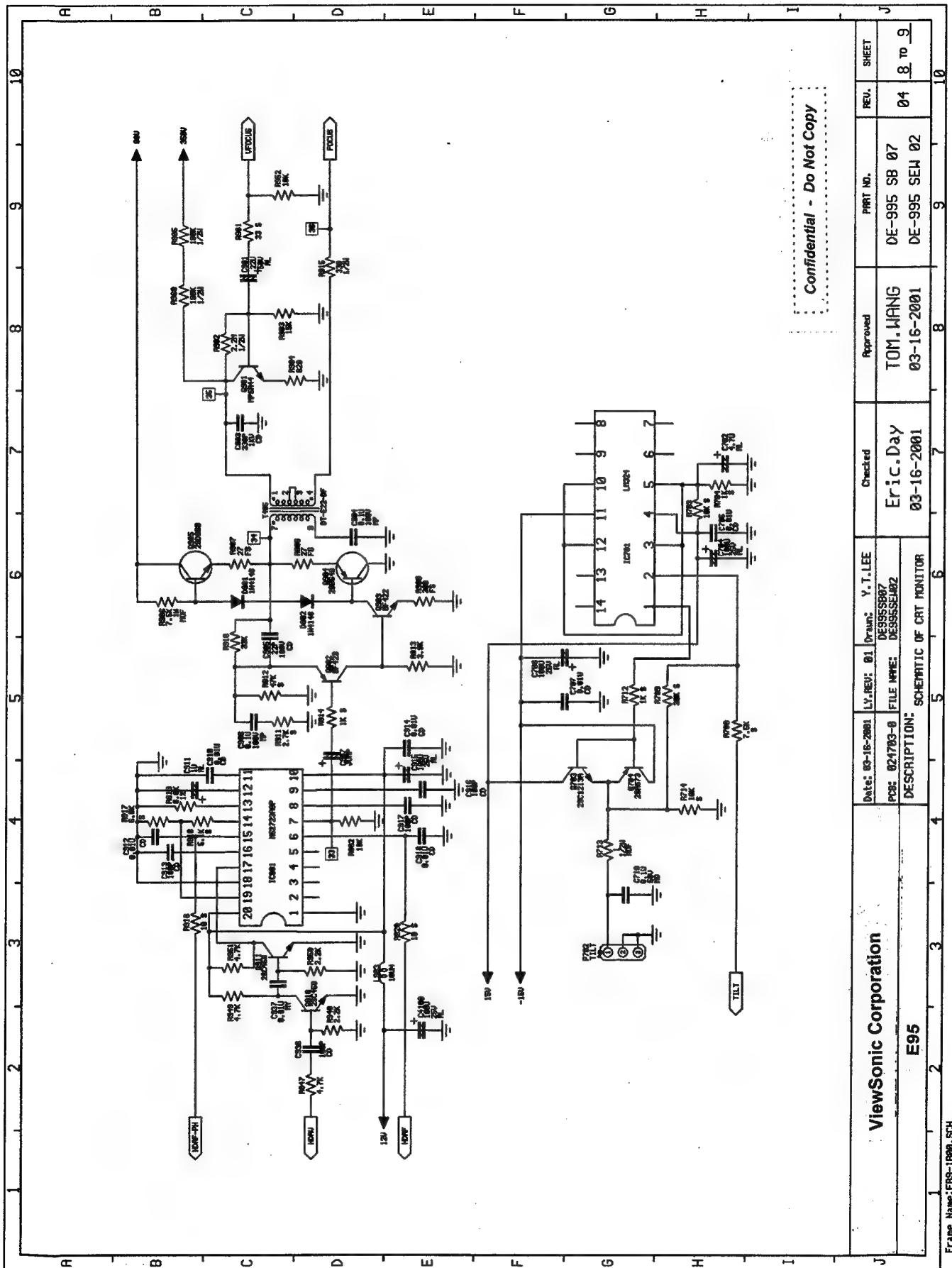


ViewSonic Corporation

34

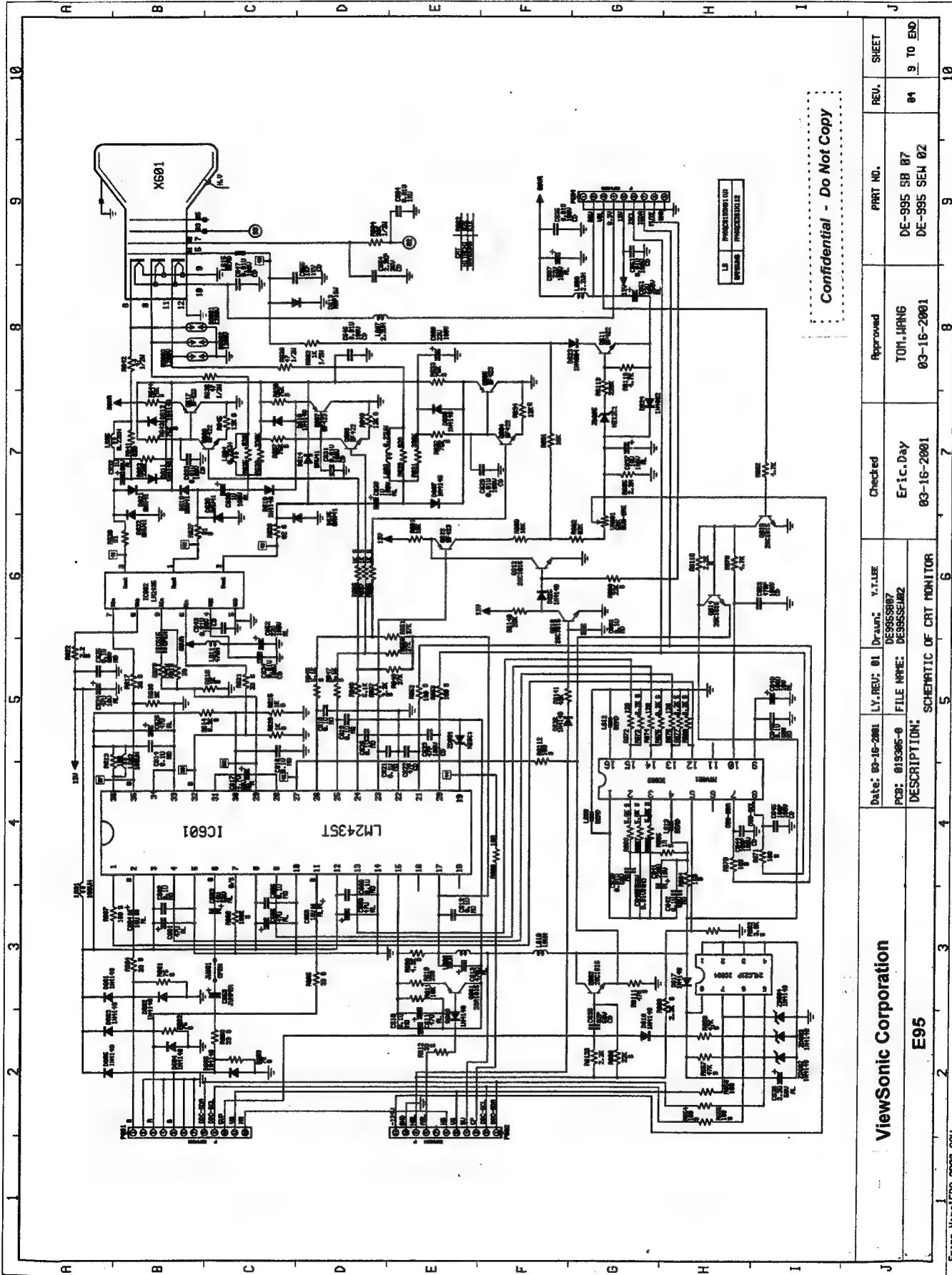
E95





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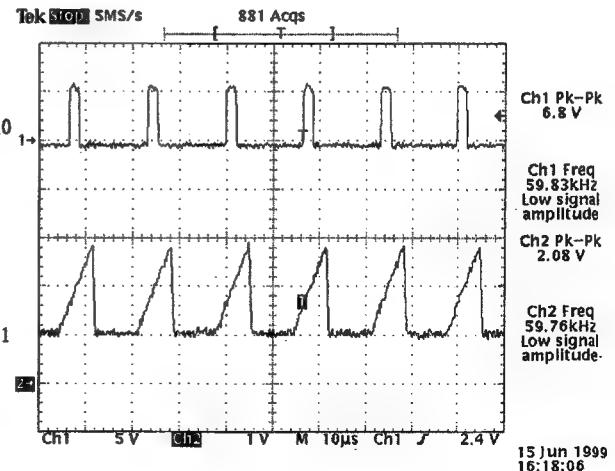
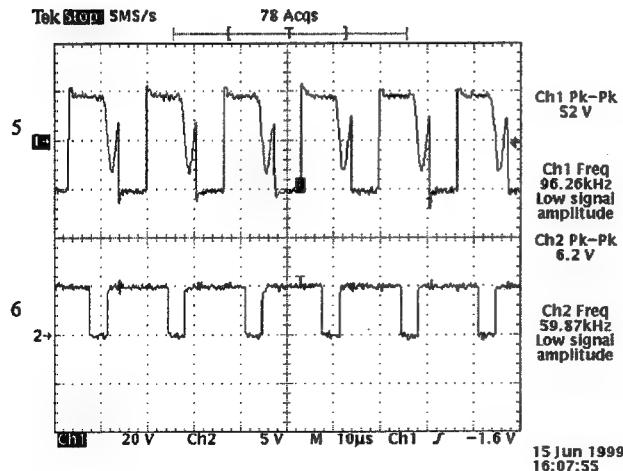
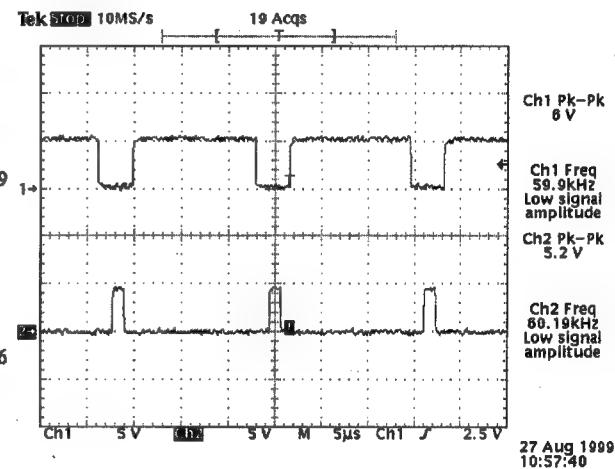
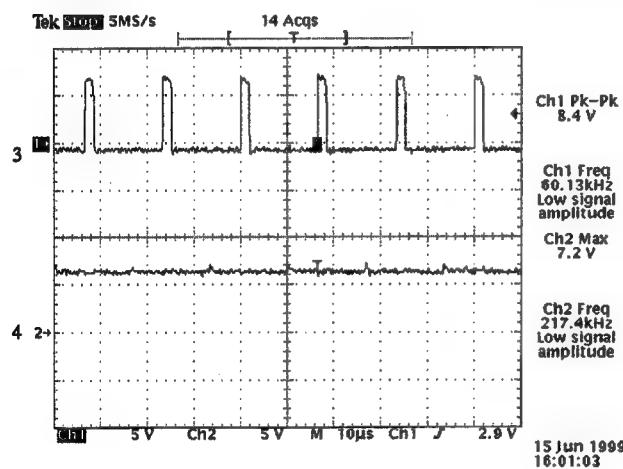
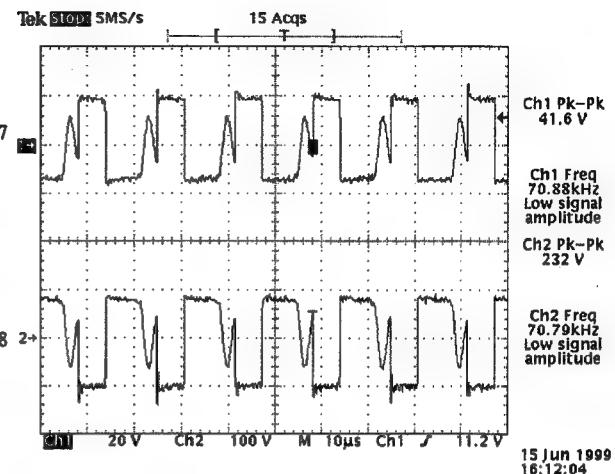
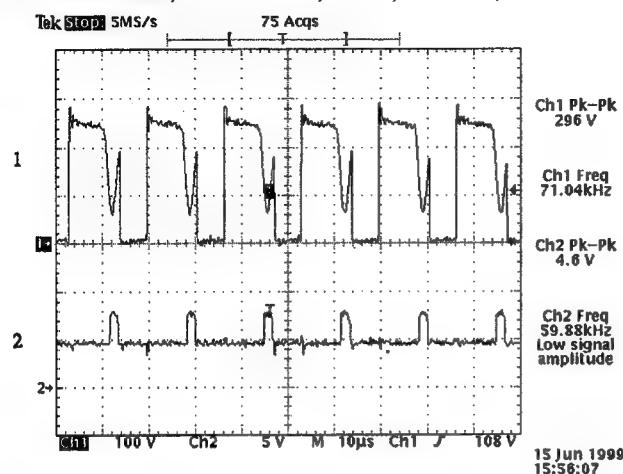
ViewSonic Corporation		Date: 03-16-2001	REV: B1	Print: Y.T.LEE	Checked	Approved	Part No.	Rev.	SHEET
E95		PCB: 024703-0	FILE NAME: DE95SSB07	Eric Day		TOM.WANG	DE-995 SB 07	04	J
		DESCRIPTION: SCHEMATIC OF CRT MONITOR		03-16-2001			DE-995 SEU 02	8 to 9	
1	2	3	4	5	6	7	8	9	10

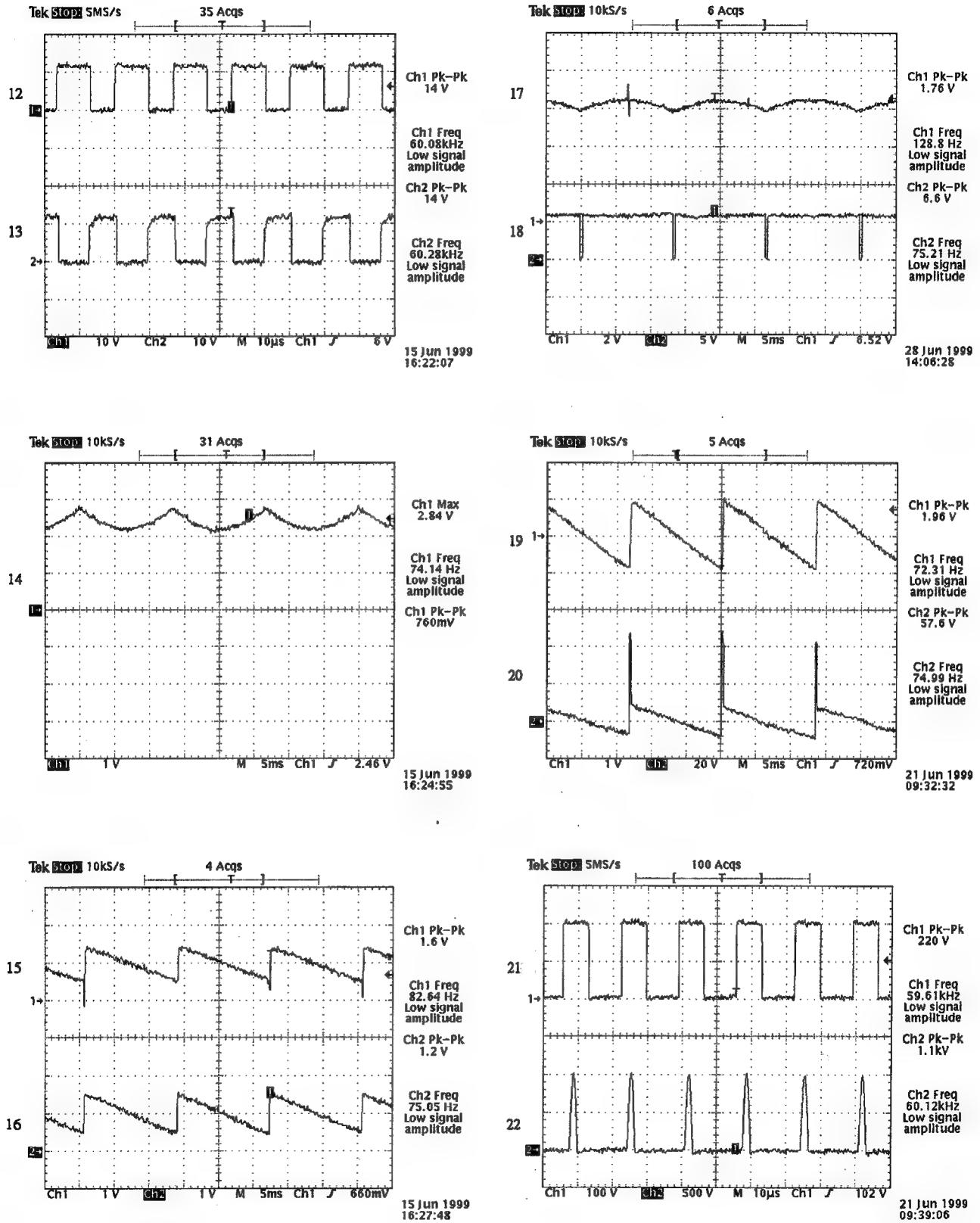


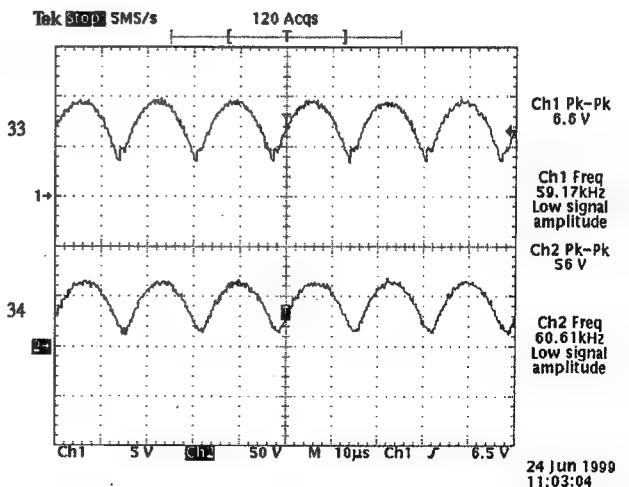
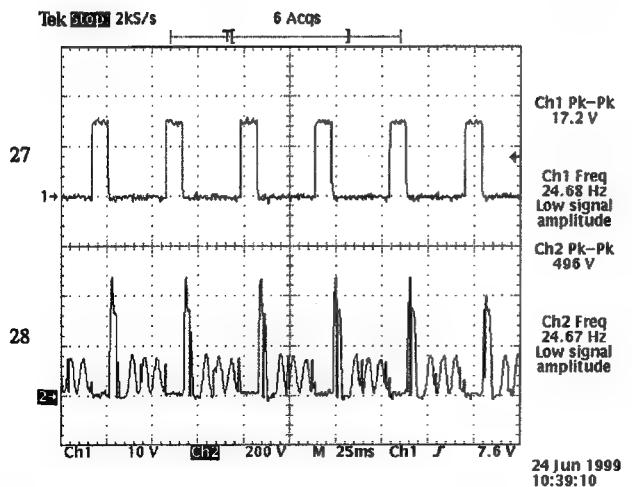
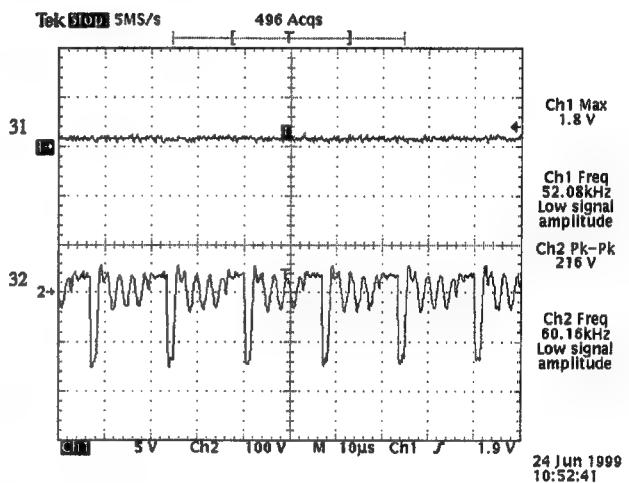
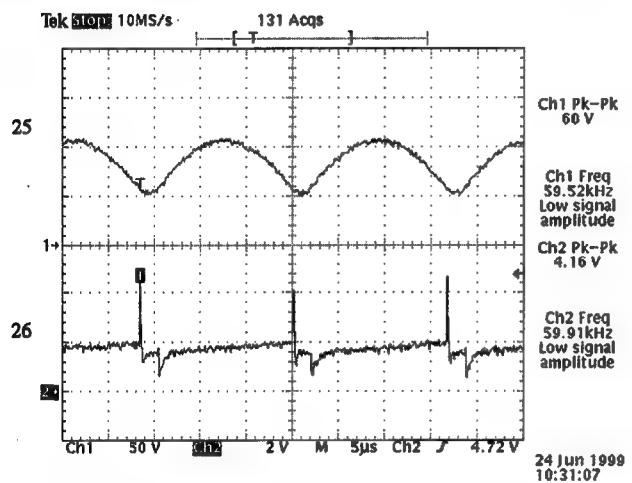
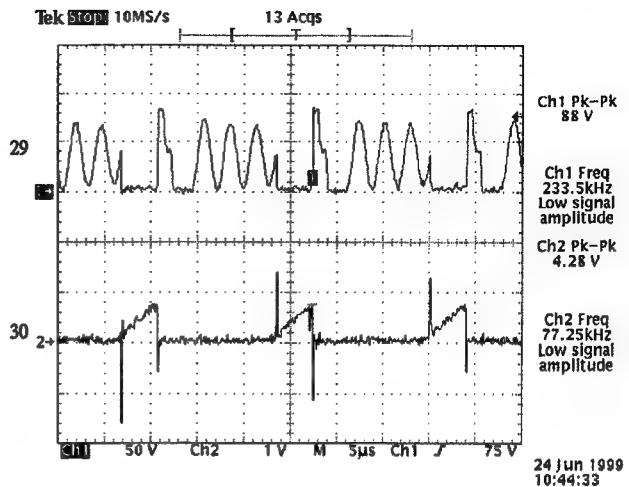
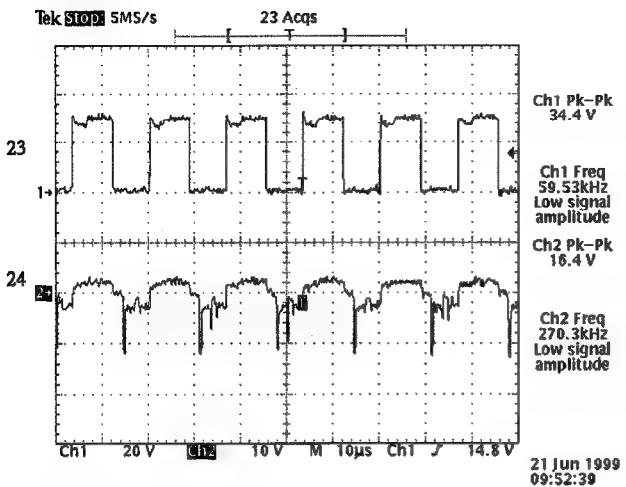
E95-1

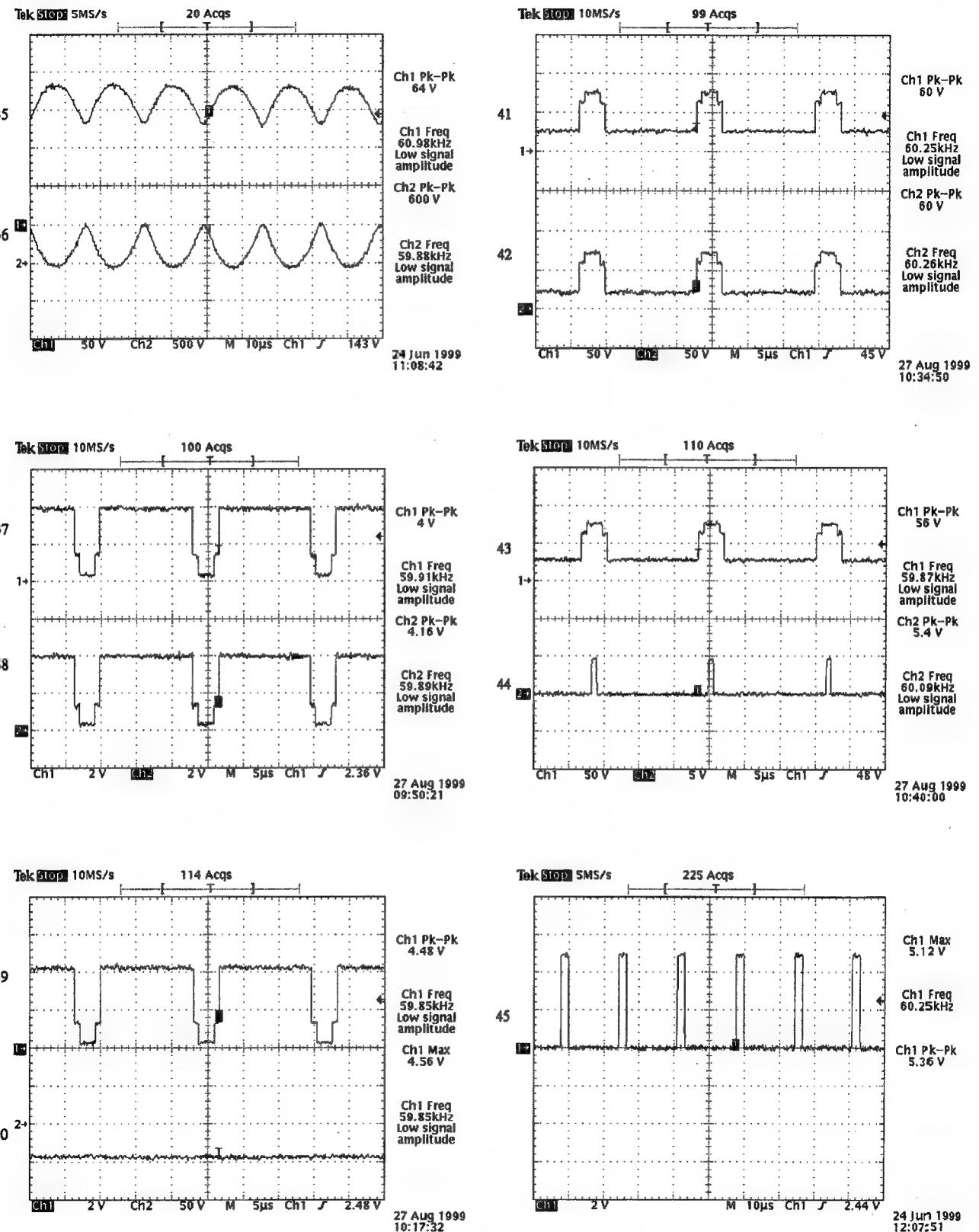
TEST CONDITION :

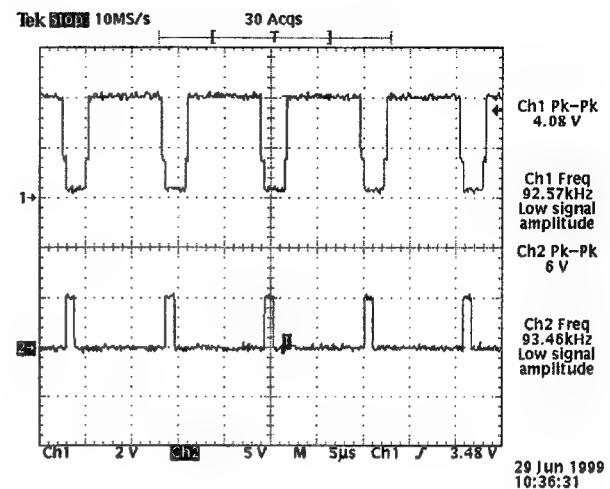
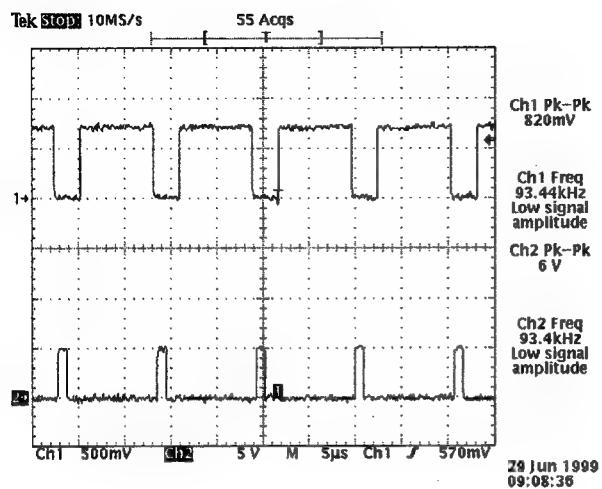
AC SOURCE : 110V ; TIMING MODE ; 60KHZ ; PATTERN ; FULL WHITE











4. Circuit description

- 4.1 Power supply (switching power supply)
- 4.2 Power saving
- 4.3 Micro-controller unit
- 4.4 Sync Processor
- 4.5 Deflection
 - 4.5.1 Horizontal synchronization processing
 - 4.5.2 Horizontal Driver stage
 - 4.5.3 Horizontal scanning and high voltage power supply circuit
 - 4.5.4 Buck converter and width control
 - 4.5.5 The Pincushion /Trapezoid/Top Hook/Bottom Hook correction
 - 4.5.6 Parallel/Pin-balance Control
 - 4.5.7 X-Ray-radiation protection
 - 4.5.8 Vertical Deflection
 - 4.5.9 Focus
 - 4.5.10 Tilt
- 4.6 Video
 - 4.6.1 Video amplifier
 - 4.6.2 On screen Display (OSD)
 - 4.6.3 Auto Beam Limit CKT (A,B,L,CKT)
 - 4.6.4 Brightness control
 - 4.6.5 Blanking CKT
 - 4.6.6 Contrast, gain & Bias control
 - 4.6.7 DDC 1/2B

4. CIRCUIT DESCRIPTION

4.1 POWER SUPPLY (switching mode power supply fly-back type)(IC101)

The raw DC B+ voltage is got from AC input voltage after CR101 rectifier. It supplies lower voltage VCC to PWM controller, IC101 (KA2S1265), through start-up circuit (R104, R120, ZD101, Q102, D113). IC101 is synchronous by T103/Q105/Q109/C110 switching frequency. In order to meet E2000 power consumption specification, during power off mode, IC102 is turned off and Q116 is turned on. It can pull low IC101 pin4 feedback signal to forced power supply shut down. High-frequency & High-Voltage square wave-form is across the primary winding and transfers energy to the secondary. The output DC voltage gets after rectifying and filtering.

In order to have a stable and regulated output voltage while AC input voltage and output load change. IC203 will produce a current change through IC104 couple a voltage change on IC101 pin4. PWM controller circuit will change duty cycle and maintain stable voltage.

The PWM controller IC101 is started up from the raw B+. The lower voltage VCC is provided by T101's AUX-Winding (pin1) through R151, D105, C108, SW101 to IC101 pin3.

The 198V in TP201 can be determinate by R211,R212,R223, VR201
($V_o = 2.5 * (R_{211} + R_{212} / VR_{201} + R_{223})$).

Degauss CKT: When the power is turn on or press manual degauss let IC303 pin13 will high to turn on Q209 and RL201, degauss will active about 4 second.

4.2 POWER SAVING

According to E2000 agreement with monitor manufacturer is as the following table:

SYNC. INPUT	H. & V. PRESENTED	NO H. OR V.	NO H. AND V.
MODE TTL SIGNAL	NORMAL ON	STAND-BY SUSPEND	POWER OFF
SW1	Hi	Lo	Lo
SW2	Hi	Hi	Lo
LED	Green	Amber	Amber
Power (Watt)	Normal	< 15W	< 3W

SW1: IC301 pin24, suspend (SUS)

SW2: IC301 pin23, power down (PD)

- The suspend mode occurs when SW1 is at low level.
The 15V, 12V, -15V are switch off via Q201 Q202 / Q205 Q206.
- The power-off mode occurs when SW1 and SW2 are at low level.
The switchine power is turn off and all output are at low output.
- The micro-processor IC301 are drived to power off mode when signal cable is not connected to PC.

4.3 MICRO-CONTROLLER UNIT (MCU) (IC301)

IC301 is a 8-bit micro-controller (D1678P40) with 16K byte ROM memory, which play a main role of the digital control monitor. It performs as mode timing detector, key control scanner and controller, DPMS power saving handling, on screen display programmer and auto-alignment geometry controller pin16/17 are for key control. Pin1/40/39 are for s-correction switch control. by IC303 Pin8/9 are for Horizontal and Vertical sync. input respectively. Pin6/7 is the V-sync. and horizontal-sync output to pin14/15 of IC401. Pin39/38 are serial clock and serial data (SCL/SDA) bus communicate with IC302 (EEPROM) pin6/5. Pin16(DSDA)/17 (DSCL) are as a port to communicate with DDC 1/2B access and auto alignment port. by signal cable. Pin21 (U-SDA) / 22(U-SCL) / 20(U-INT) are USB bus.

4.4 SYNC. PROCESSOR

The horizontal sync. is connected from signal cable to IC301(MCU) pin8 input and from IC301 pin7 output positive polarity sync to IC401 pin15.

Vertical sync. is connector from signal cable to IC301(MCU) pin9 input comes out at pin6 a positive polarity sync to IC401 pin14.

The IC301 and the IC401 (TDA4856) sync input can handle either composite or separate sync input.

4.5 DEFLECTION CIRCUIT

4.5.1 Horizontal Synchronization Processing

The horizontal synchronization processor is integrated inside the chip of IC401. It uses a dual phase-lock-loop (PLL1/PLL2) design. This operation ensures a smooth tuning and avoids fast changes of H-frequency during catching.

The processor can synchronize with the input sync. up to triple of free-run frequency which is determined by R408, R409 and C407.

The PLL1 phase detector circuit is used to control the oscillator frequency and maintains it in proper frequency and phase with the incoming sync signal. One input is coupled from output of VCO that is built inside the IC.

A loop filter with a properly selected time constant (C406, R407) is connected at pin26.

The PLL2 circuit is used to compare the line flyback pulse at pin HFLB with the oscillator sawtooth voltage, to compensate the delay in H-deflection by adjusting the PHASE of HDRV. One input is from the output of VCO (which is inside the IC) and a second input (pin1 of IC 401) is from Q415 collector pulse via C483, C484.

The control voltage formed through loop filter is to control horizontal output pulse output at proper duty cycle and maintains the phase between raster and picture.

4.5.2 Horizontal Driver Stage

The horizontal drive pulse from pin8 of IC401 is applied to the base of driver MOSFET Q4125. B⁺ is provided by the regulated 15V-voltage source via R446, R446 and C424. The output of driver transformer T401 is coupled to the base of Horizontal output Transistor Q415. R441 C442 compose of damping network, which is to eliminate the leakage flux of T401 during Q412 turn off.

E95-1 circuit description

4.5.3 Horizontal Scanning and High Voltage Power Supply Circuit

The horizontal scanning is accomplished by Q415, D410, C428, and DY (P401). Except the basic horizontal scan output, Linearity coil T403 corrects the asymmetrical distortion.

(C427/C432/C434/C435/C436/C437/C438) are S-Correction capacitors, Q420/Q421/Q422/Q423/Q424 switched on/off according to different H-frequency.

The conducting period of damper diode D410 completes the first half part of horizontal scan. The conducting period of horizontal output transistor Q415 completes the second half of scan.

The retrace capacitor is C428, the charge and discharge actions of retrace capacitor via yoke after Q415 turned off, which is designed for the same resonant frequency with the main scan circuit.

In the high voltage drive circuit, the output of Q401 is applied to the primary winding of flyback transformer (FBT) T401 and drives the flyback transformer to supply CRT anode voltage of about 25.8KV during retrace period. T402 pin6 voltage (B+) steps down by IC402, Q402. Feedback components are C416, R425 and VR402.

Several driven power sources are developed in the FBT secondary, including
40Vp-p: XPR pulse (pin10), -130Vp-p: G1 negative pulse (pin4), 400Vp-p: V Focus VCC (pin3).

4.5.4 Buck Converter and width control

In order to maintain same scan width (raster) within 30KHz-95KHz or 30KHz-86KHz, the scan supply B+ tracked with continuos H-frequency is necessary, and the design is implemented by a convention method-of buck converter. The buck converter mainly composes of a P-channel MOSFET (Q408), choke T402 and rectifier diode D409.

The PWM control circuit is integrated in IC401 pin5 is inverting, pin3 is output of error amplifier, both for frequency compensation and gain setting. PWM pulse width output at pin6 is modulated according to internal error amplifier output. Pin4 current sense is controlled by Q403, R431, ZD401 and R432 for horizontal size width limitation.

4.5.5 The Pincushion/Trapezoid/Top Hook/Bottom Hook Correction

The voltage across R418 can be varied in accordance with a vertical parabolic or sawtooth waveform, which is generated by IC401 pin11. The peak yoke current is decreased in proportion to the feedback of R418, as the voltage across R418 is changed for compensating the pincushion, trapezoid and Hook effect. The waveform is adjusted by IC301 SCL SDA control IC401 pin18 pin 19.

4.5.6 PARALLEL and PIN-BALANCE CONTROL

Parallel CKT is superimposed the vertical sawtooth current inside of IC401 the waveform amplitude is adjust by IC301 SCL SDA control IC401 pin18 pin 19.

Pin-balance CKT is superimposed the vertical parabolic current inside of IC401 the waveform amplitude is adjusted by IC301.

4.5.7 X-RAY-RADIATION PROTECTION

The X-Ray-radiation protection circuit usually uses in the monitor latching type circuit. Therefore, should a fault occur which would activate the X-ray protect circuit, Should a fault occur which would cause the high voltage to increase above a predetermined level, the positive pulse at pin7 of the FBT (T404) would go more positive. This will increase the voltage applied to ZD405 to exceed its breakdown voltage for a certain time. An latch circuit Q434 Q435 switches the IC404 pin1 into protection mode. Shutting down the IC404 and Q437.

NOTE: The X-RAY-Radiation protection circuit used in this monitor is a latching type the monitor will shut down and continue until turn-off the monitor by power switch.

4.5.8 Vertical Deflection (IC501)

Vertical deflection function is operated in the IC401, IC501 that mainly contains the oscillator, ramp generator, and power output amplifier and flyback generator. Vertical oscillator is obtained amplifier by means of and integrator driven by oscillation circuit that is determined by C402, C403 and R406. The vertical sync signal is applied to the pin14 of IC401. Once the sync signal synchronized a clock pulse is generated inside this chip. The clock pulse is just as a sync input of ramp generator. A liner voltage ramp is produced at pin12,13 of IC401, and is couple to IC501 pin1,7 for vertical output amplitude Vertical output amplitude is controlled by R502/R505, IC401 inside parameter and IC301 Vert. size DAC.

The CKT of the TDA8172 provides a high CMRR current driven differential input (pin1,7), the output stages (pin3,5) in a full bridge configuration, a flyback generator, a protection CKT for the output stage and a guard CKT.

The pin5 is the output of the power amplifier and it drives the yoke by a current driven in opposite phase current ramp. Pin2 is the supply voltage 15VDC, Pin4 is supply voltage -15VDC, the pin3 is the feedback pulse feedback to pin6.

Vertical frequency is 100~180Hz, Q401 off so vertical free run is only determined by C402. If vertical frequency is 50~100Hz, Q401 on so vertical free run is determined by C402 + C403. Total vertical frequency range is from 50Hz to 180Hz.

Vertical centering is controlled by changing the DC voltage at vertical output that is caused from the DC shift of IC401 pin13, and that can be adjusted by DAC control of IC301.

4.5.9 FOCUS

Horizontal parabolic wave form the IC901 pin7 (M52723ASP) Sync trigger by the pin17 of IC901. IC901 pin7 is horizontal parabolic O/P to drive Q902, Q903 and Q904 via T405 pin7 coupling to FBT pin13. Vertical parabolic waveform is taken from Q904 via T405 pin1 to FBT pin13. IC901 pin6/pin15 can control IC901 pin7 amplitude/phase by IC301 pin32/pin31.

4.5.10 TILT

Tilt CKT is operated a current of different direction on rotation coil. The IC301 pin33 output 0~5V to IC701 pin2 to control the volt amplitude and polarity on IC701, IC701 pin1 output via Q701 Q702 to drive rotation coil.

4.6 VIDEO

4.6.1 VIDEO AMPLIFIER (IC601)

The video amplifier module is composed of three amplifiers for red, green, blue channel.

The video input signal is fed to the video preamplifier IC601 (M52743BSP) (pin2 blue, pin6 green, pin11 red) through AC coupling capacitor C603, C604, C658.

The clamping pulse comes from IC301 pin28 to IC601 pin19. The blanking pulse come from P602 pin9 (HBL) and P604 pin3(VBL) to IC601 pin27.

IC602 is an integrated high voltage CRT driver circuit designed to drive R.G.B channel of CRT

4.6.2 On Screen Display (OSD)(IC603)

IC603 (MTV021N-25) is a on screen display generator. Pin5 for H-sync input, pin10 for V-sync input. The IC603 is controlled by IC301 via P604 ISCL, ISDA to IC603 pin7, pin8.

The on screen display signal is output from pin12 (B), pin15(G), pin14(R), pin13(B)connected to mixer circuit of IC601 pin1, pin4, pin13, pin9.

4.6.3 Auto Beam Limit CKT (A. B. L. CKT)

When beam current over 870uA by VR401, the voltage build at base of Q601 will be less then 3.5V, then the voltage of pin15 of IC601 will be pulled down accordingly to reduce the video preamplifier gain output.

4.6.4 Brightness Control

Brightness (G1) is controlled by varying the DC voltage of VR601 and the IC601 pin23 (DAC) voltage.

4.6.5 Blanking CKT

From IC301 pin6 and IC501 pin6 vertical blanking pulse are fed to the base of Q501 and via P604 pin3. The blanking pulse O/P is coupled to horizontal blanking pulse by Q614. Horizontal & vertical blanking pulse are fed to IC601 pin27 and let video O/P Amp cut off during the period of horizontal retraces. While mode change, IC301 pin15 will pull high to turn on Q612 (mute function) and Q613 will be off. The G1 volt will drop to -130V then CRT will cut off the video output.

4.6.6 CONTRAST, GAIN & BIAS CONTROL

The IC601 contains three gated single ended input black level clamp compurgators for brightness control, three matched DC controlled attenuators for contrast control, and three DC controlled sub-contrast attenuators providing gain trim capability for white balance.

All the DC control voltages come from IC601 internal (DAC) is controlled by IC301 Micro controller via a serial bus. The IC601 DAC output pin24, 25, 26 for G.R.B (BIAS) controller.

4.6.7 DDC1/2B

IC604 (24LC21) can transmit continuously its extended identification, "EDID" using DDC1 communication channel. In addition, the monitor can respond to a request for EDID, or complete VDIF, to be transmitted using DDC2, level B commands. Pin6 (DSCL) is clock input for DDC 2B, pin5 (DSDA) for data input. Pin7 (V-sync) is clock input for DDC1 through V-sync.

In DDC1 data transfer (UNI-directional mode) the V sync input pin is used as input clock for data transmission and SDA output pin as serial data line the SCL pin will hold high.

The DDC2B mode (BI - directional mode), BUS consists of two wires SCL is for the data transmission clock and SDA is for the data link.

5. Adjusting procedure

A. General.

B. Instrument alignment.

1. Deflection presets.
2. Power supply alignment.
3. Size & geometry adjustment.
4. Video alignment / function memory recall.
5. Focus adjustment.

C. PCB defined.

D. Fixture function description.

General

1. All specification must be met over line voltage range of 90VAC to 264VAC 50Hz/60Hz unless otherwise specified.
2. Operating temperature range is 0 DEG.C to 40DEG. C with a relative humidity of 10% or less to 95%.
3. The monitor must be operational in an unstable state within 30 seconds after turn-on.
4. All signal levels are measured assuming termination at the monitor's input jacks or in its characteristic impedance.
5. An ambient lighting level of 400 to 600 LUX is assumed when setting brightness for raster extinction threshold.
6. All purity related specifications must be met without external degaussing.
7. All controls must have excess range (No control may be left at an end stop when proper alignment is completed).
8. The monitor is not required to meet specs during the following but must tolerate, without damage to the CRT or circuits, Any sequence or combination of power on and off, signal on and off, unplugging of power or signal, erratic, Wrong frequency of inputs while at any possible settings of user accessible controls noisy
9. An isolation transformer should be used when performing alignment and tests. Portions of the power supply board are hot ground The remaining boards are cold ground
10. Discharge of CRT anode should be done only to CRT ground strap.
11. Geometric measurement are assumed to be made alone a straight surface with a flat rule or template.

A. Instrument alignment

1. Deflection presets

1.1 Control pots (VR201, VR401, VR402, VR403) are set at middle point. screen VR set to MIN.

2. Power supply alignment

2.1 Input VESA 1024x768 / 75Hz mode & cross-hatch pattern.

2.2 Adjust VR201 until voltage at TP201=198V± 0.2V.

3. Extreme high voltage alignment

3.1 Input VESA640x480 31.5KHz/60Hz mode & cross-hatch pattern.

3.2 Contrast 100%, brightness 50%.

Adjust VR402 let H.V=26 ± 0.1KV (E95-1)

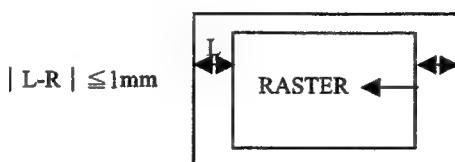
Adjust screen (G2 knob) let G2 = 540 ± 10VDC.(E95-1).

Set focus (G3 / G5 knob) to be distinguish.

4. Horizontal alignment

4.1 Raster centering

- 4.1.1 Input test signal VESA 1024x768 / 75Hz mode & cross-hatch pattern.
- 4.1.2 Contrast 0%, Brightness 100%.
- 4.1.3 Press select the OSD to "RCENTER".
- 4.1.4 Adjust "RCENTER" Δ/∇ to center raster on screen such that the horizontal distance from the left display edge to the left bezel edge is within 3mm of the distance from the right display edge to the right bezel
- 4.1.5 Edge.



- 4.1.6 Change input test signal VGA 640x480 / 60HZ mode & cross-hatch pattern.
- 4.1.7 Select the OSD to "H-SIZE".
- 4.1.8 Adjust "H-SIZE" Δ/∇ to narrow the raster size on screen such that the horizontal distance at the right and left edge is within 5mm.
- 4.1.9 Adjust "RCENTER" Δ/∇ to center raster on screen such that the horizontal distance from the left display edge to the left bezel edge is within 3mm of the distance from the right display edge to the right bezel edge.

4.2 Picture centering

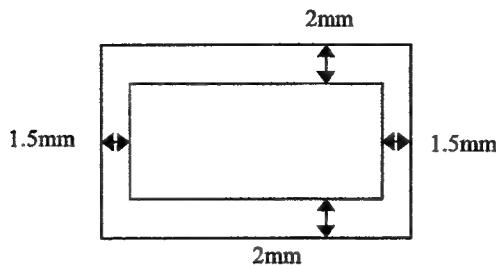
- 4.2.1 Input test signal VESA 1024x768 / 85Hz MODE & cross-hatch pattern.
- 4.2.2 Contrast 100%, Brightness 100%, cross-hatch pattern.
- 4.2.3 Adjust "H-PHASE" such that the picture is centered with the raster.
- 4.2.4 Adjust "H-SIZE" such that the picture size is 357mmX268mm.

4.3 Geometry distortion : PINCUSHION, PIN-BALANCE, TRAPEZOID, PARALLEL, TILT, TOP HOOK, BOTTOM HOOK.

- 4.3.1 Input test signal VESA 1024x768 / 85Hz mode & cross-hatch pattern.
- 4.3.2 Adjust "PINCUSHION" such that PINCUSHION / BARREL distortion of the nominal rectangle specified.

E95-1 Adjusting procedure

4.3.3 Trapezoid / Parallelogram / TOP & Bottom hook / tilt adjustment.



4.3.4 Geometry distortion must limit as above diagram.

4.4 Picture width

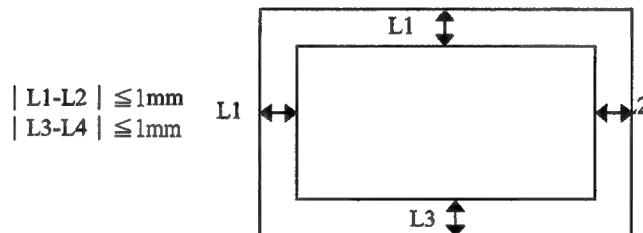
4.4.1 Input preset timing adjust,H-SIZE (OSD) to achieve $357 \pm 4\text{mm}$.

5. Vertical section adjustments.

5.1 Centering(with magnetic filed)

5.1.1 Apply signal at VESA 1024x768 / 75Hz mode, cross-hatch pattern.

5.1.1 Adjust "V-CENTER" to the video display vertically such that the vertical distance from the center of picture to the top bezel edge and the bottom bezel edge is within 3mm.



5.2 Vertical size

5.2.1 Apply preset timing cross-hatch pattern.

5.2.2 Adjust "V-SIZE" such that vertical height is $268\text{mm} \pm 1\text{mm}$.

6.0 Dynamic focus adjustment

6.1 Dynamic focus phase adjustment

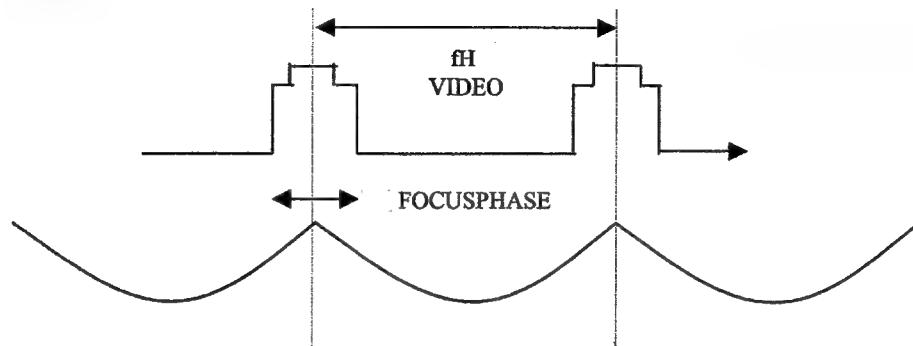
6.1.1 Apply VESA1280x1024 80KHz / 75Hz mode full white pattern.

6.1.2 Connect oscilloscope across T404 pin13 on PCB-MAIN with GND Display size width: 357mm, height 268mm.

6.1.3 The OSD select FACTORY DEFLECTION to "FOCUSPHASE".

E95-1 Adjusting procedure

6.1.4 Adjust FOCUSPHASE to get horizontal parabolic waveform at center with video signal center by pressing adjust “▲” and “▼”.



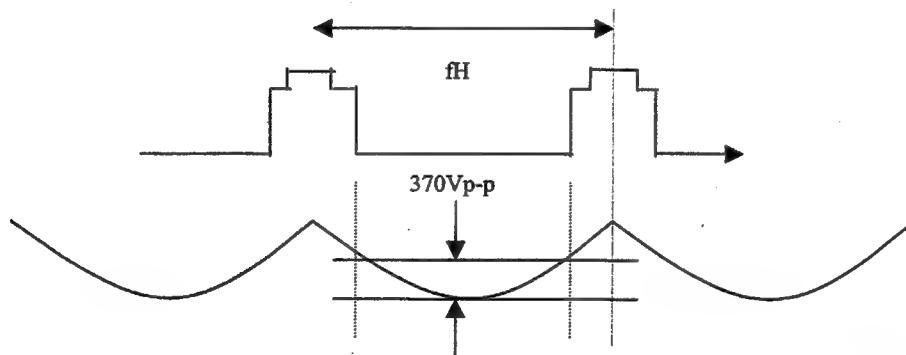
6.2 Dynamic focus parabolic waveform adjustment

6.2.1 Apply 30KHz / 50Hz, 95KHz / 150Hz timing display size width: 357mm, height: 268mm ,
H-FOCUS = 50% , V-FOCUS = 50%.

6.2.2 Input VGA 640x480 / 60Hz full white pattern

6.2.3 Select FACTORY PARAMETER to 31KHZ.

6.2.4 Adjust horizontal parabolic waveform to get $370 \pm 10\text{Vp-p}$ by pressing adjust “▲” and “▼”.



6.2.5 Input 30KHZ/ 50HZ full white pattern, select FACTORY PARAMETER to 50Hz.

6.2.6 Adjust vertical parabolic waveform to get $170\text{Vp-p}\pm 5\text{Vp-p}$ by pressing adjust “▲” and “▼”.

6.2.7 Input VESA 1600x1200/75Hz full white pattern.

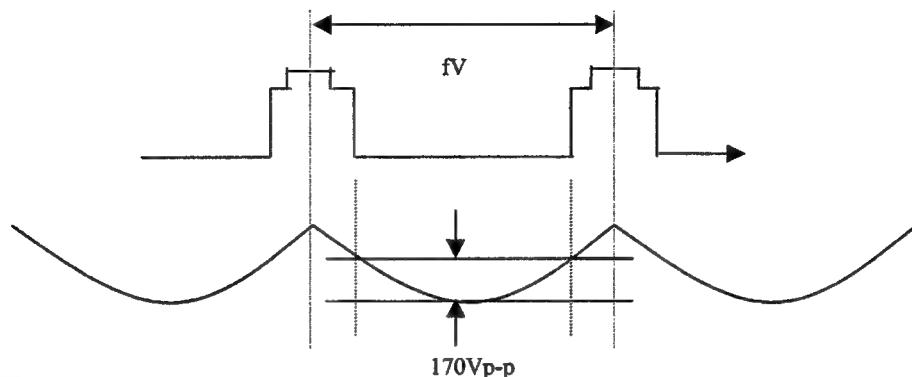
6.2.8 The OSD select FACTORY PARAMETER to 95KHz.

6.2.9 Adjust horizontal parabolic waveform to get $370 \pm 10\text{Vp-p}$ by pressing adjust “▲” and “▼”.

6.2.10 Input 95KHz / 150Hz full white pattern, the OSD select FACTORY PARAMETER to 150Hz.

E95-1 Adjusting procedure

6.2.11 Adjust vertical parabolic waveform to get $170\text{Vp-p} \pm 5\text{Vp-p}$ by pressing adjust “▲” and “▼”.



7. Focus adjustment

- 7.1 Set BRIGHTNESS at 50% AND CONTRAST at 100%.
- 7.2 Apply signal (all “ME” pattern) at VESA1024x768 / 75Hz mode.
- 7.3 Disconnect the RED and BLUE video input so as to produce a green only screen.
- 7.4 Set FOCUS CONTROL F1, F2 for best focus at midpoint of diagonal line from 10:00 corner to center of screen. F1 control for VERTICAL LINE; F2 control for HORIZONTAL LINE; individual; pixels should be distinguishable over entire display area.

8. Video preset condition

- 8.1 Apply VESA 1024x768 / 75Hz.
- 8.2 Display size width: $357 \pm 4\text{mm}$, height: $268 \pm 4\text{mm}$.
- 8.3 CONTRAST 100
- 8.4 BRIGHTNESS “100”
- 8.5 RCUT, GCUT , BCUT “30”
- 8.6 RGAIN, GGAIN, BGAIN “200”
- 8.7 G1 “100” (Range 50 ~ 205)

9. Video alignment

9.1 Video cut off adjustment

- 9.1.1 Adjust VR601 to get the raster $0.2 \sim 0.4\text{FLS}$ (Center = 0.3FLS) (E95-1).
- 9.1.2 Adjust “RCUT”, “GCUT”, “BCUT” to get color coordination.
 $x=0.283 \pm 0.010$, $y=0.297 \pm 0.010$
- 9.1.3 Adjust “VR601” to get the raster $Y=0.6 \pm 0.2\text{FLS}$ (E95-1)

E95-1 Adjusting procedure

9.1.4 Ensure that color coordination is $x=0.283\pm 0.010$, $y=0.297\pm 0.010$, if color coordination out specification, repeatedly item 9.1.1 ~ 9.1.3, until it meet specification.

9.1.5 Adjust R.G.B BIAS control to meet following chromatically spec.

$9300^{\circ}\text{K} \rightarrow x = 0.283\pm 0.010, y = 0.297\pm 0.010, Y = 0.6 \pm 0.2 \text{FLS}$ (E95-1)

$6500^{\circ}\text{K} \rightarrow x = 0.311\pm 0.010, y = 0.329\pm 0.010$

$5000^{\circ}\text{K} \rightarrow x = 0.346\pm 0.010, y = 0.359\pm 0.010$

9.2 Brightness and white balance adjustment

9.2.1 Set VESA 1024x768 / 75Hz window pattern, CONTRAST = 100% BRIGHTNESS = 50%.

9.2.2 Apply green white window pattern adjust G-DRIVER to obtain GREEN window pattern light output about $Y = 30\pm 2$ FLS.

9.2.3 Apply white window pattern, adjust R-DRIVER, B-DRIVER to meet following chromatically spec. after G-DRIVER fixed.

$9300^{\circ}\text{K} \rightarrow x = 0.283\pm 0.010, y = 0.297\pm 0.010$

9.2.4 Get $Y = 40 \pm 1$ FLS

9.2.5 Apply GREEN white window pattern light output about ($Y = 24 \pm 2$ FLS).

9.2.6 Apply white window pattern, adjust R-DRIVER, B-DRIVER following chromatically spec. after G- DRIVER fixed.

$6500^{\circ}\text{K} \rightarrow x = 0.313 \pm 0.010, y = 0.329 \pm 0.010$

9.2.7 Apply GREEN white window pattern, adjust G-DRIVER to obtain GREEN window pattern light O/P about ($Y = 20\pm 2$ FLS).

9.2.8 Apply WHITE window pattern ,adjust R-DRIVER, B-DRIVER to meet following chromatically spec after G-DRIVER fixed.

$5000^{\circ}\text{K} \rightarrow x = 0.346\pm 0.010, y = 0.359\pm 0.010$

9.3 Apply full WHITE pattern, adjust VR403 to get $Y = 30\pm 2$ FLS and check the chromatically meet following spec.

9300°K only for 1024x768 / 75Hz

$| x(Y=\text{MAX}) - x(Y=10) | \leq 0.010$

$| y(Y=\text{MAX}) - y(Y=10) | \leq 0.010$

10. X-RAY adjustment/FACTORY MODE disable

10.1 X-RAY adjustment & check

10.1.1 Input 640X480 / 31.5Kz mode, cross-hatch pattern.

10.1.2 Set CONTRAST 100%, BRIGHTNESS 50%.

10.1.3 Use 47K 1% parallel with R4123 12K (P402).

10.1.4 Adjust VR401 let picture shut down.

10.1.5 Use 60K 1% parallel with R4123 12K 1% (P402), the picture must be OK.

10.2 Factory mode enable/disable

10.2.1 Press "ENTER" key until push power knob on/off four times that can enable factory mode. If press "▲" key until push power knob one time that can disable factory mode.

10.2.2 Press "▼"key until push power knob four times, that can enable burning mode and can use fixture to adjust picture. If press r "MENU" key until push power knob one time, that can disable burning mode.

D. Fixture Function Description

1. Fixture adjust.

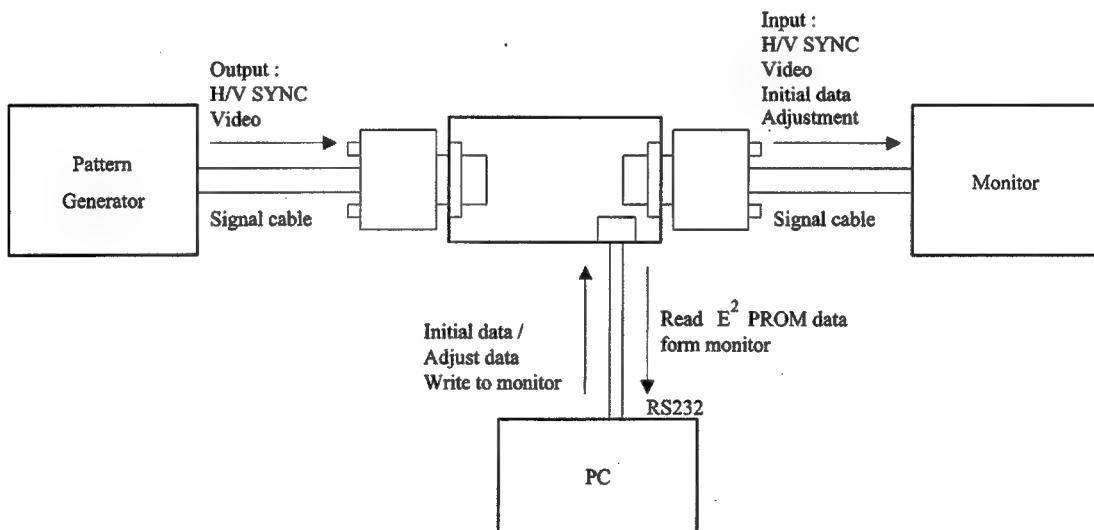
Adjust Program				
H . Position	255	Rotation	255	B Drive
H. Size	255	HDBF_31K	255	R Cut-Off
V . Position	255	HDBF_95K	255	G Cut-Off
V . Size	255	VDBF_50Hz	255	B Cut-Off
Sidepin	255	VDBF_150	255	
PinBalance	255	Rotation	255	
Keystone	255	Rotation	255	Get Data
Parallel	255	Rotation	255	Get 9300
TopCorner	255	Rotation	255	Get 6500
BomCorner	255	Rotation	255	Get 5000
TopBalance	255	Rotation	255	Save Geometry
BomBalance	255			Save Parameter
H_Moire	255	G1V_Fine	255	Save Color
V_Moire	255	Contrast	255	
H_Focus	255	Brightness	255	
Raster	255	R Drive	255	
Hliner	255	G Drive	255	
FocusPhase	255			

E95-1 Adjusting procedure

2. Command define.

- 2.1 Loading initial data file : File -> Open -> select file -> open
- 2.2 Write initial data to monitor : Monitor -> write_eep .
- 2.3 Get data : Read E²PROM data (one mode adjustment value).
- 2.4 Get 9300 : get color 9300K to adjust .
- 2.5 Get 6500 : get color 6500K to adjust ..
- 2.6 Get 5000 : get color 5000K to adjust .
- 2.7 Save color : save current color temperature data .
- 2.6 Save geometry : Save geometry adjustment data.
- 2.7 Save parameter : Save adjustment data to E²PROM.

3. Fixture Connect.

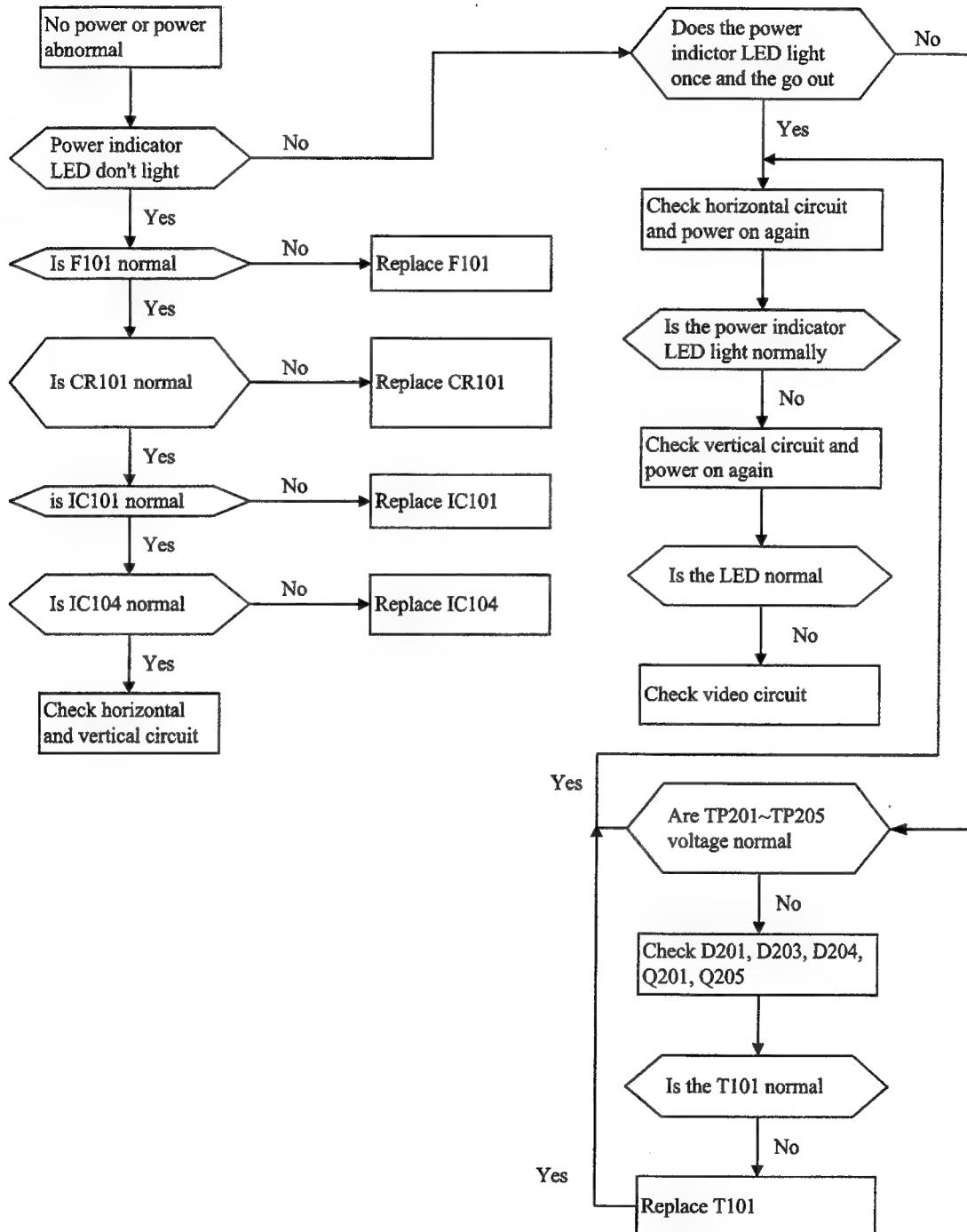


6. Trouble shooting flow chart

1. Power supply is defective
2. Horizontal deflection circuit is defective
3. The raster don't appear
4. Vertical deflection is defective
5. Video is defective

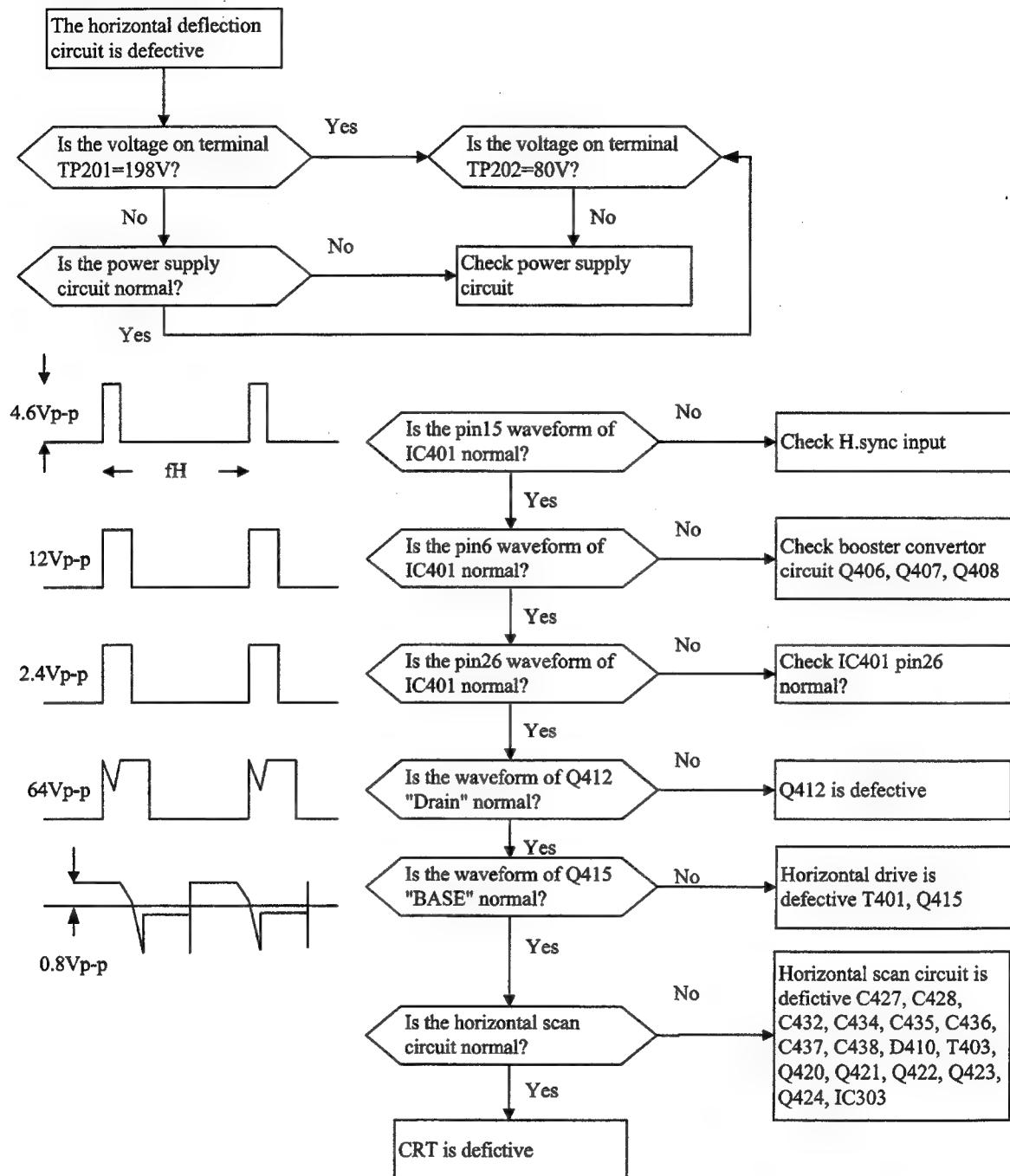
E95-1 trouble shooting flow chart

1. Power supply is defective



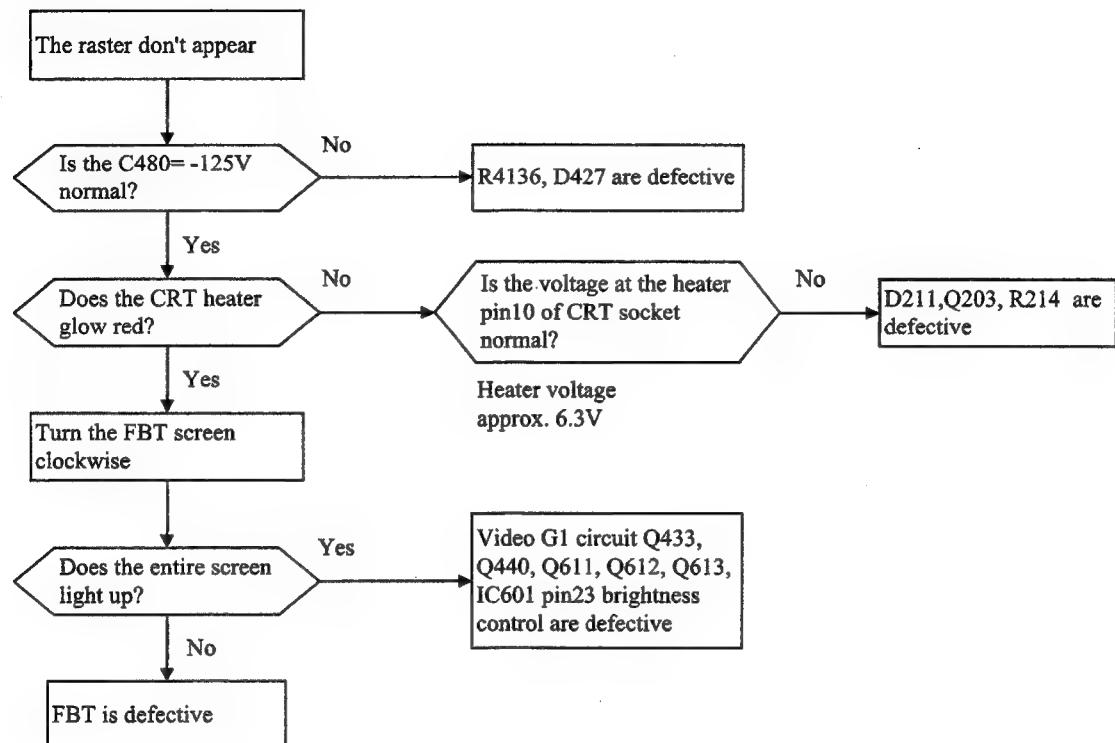
E95-1 trouble shooting flow chart

2. Horizontal deflection circuit is defective



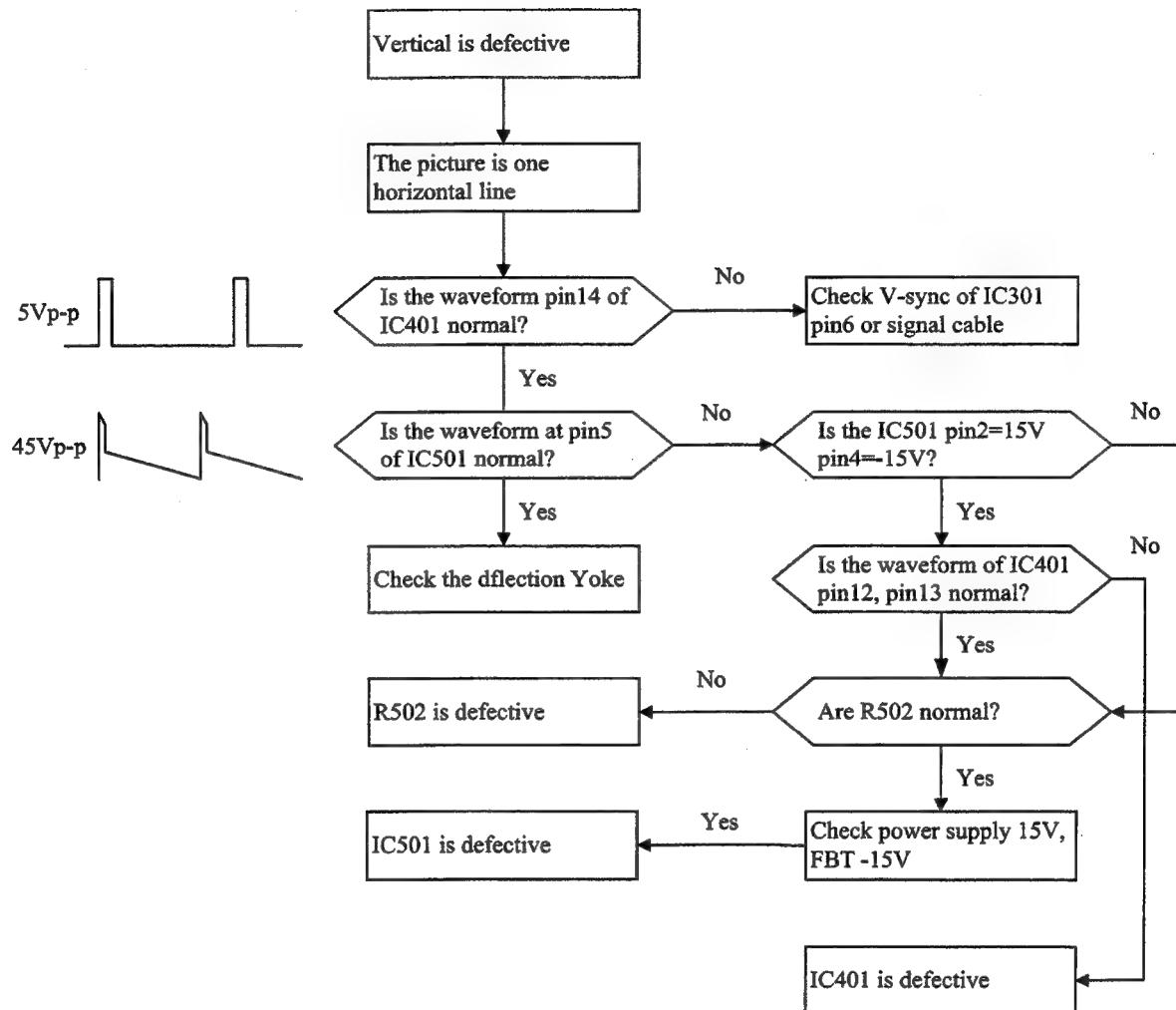
E95-1 trouble shooting flow chart

3. The raster don't appear



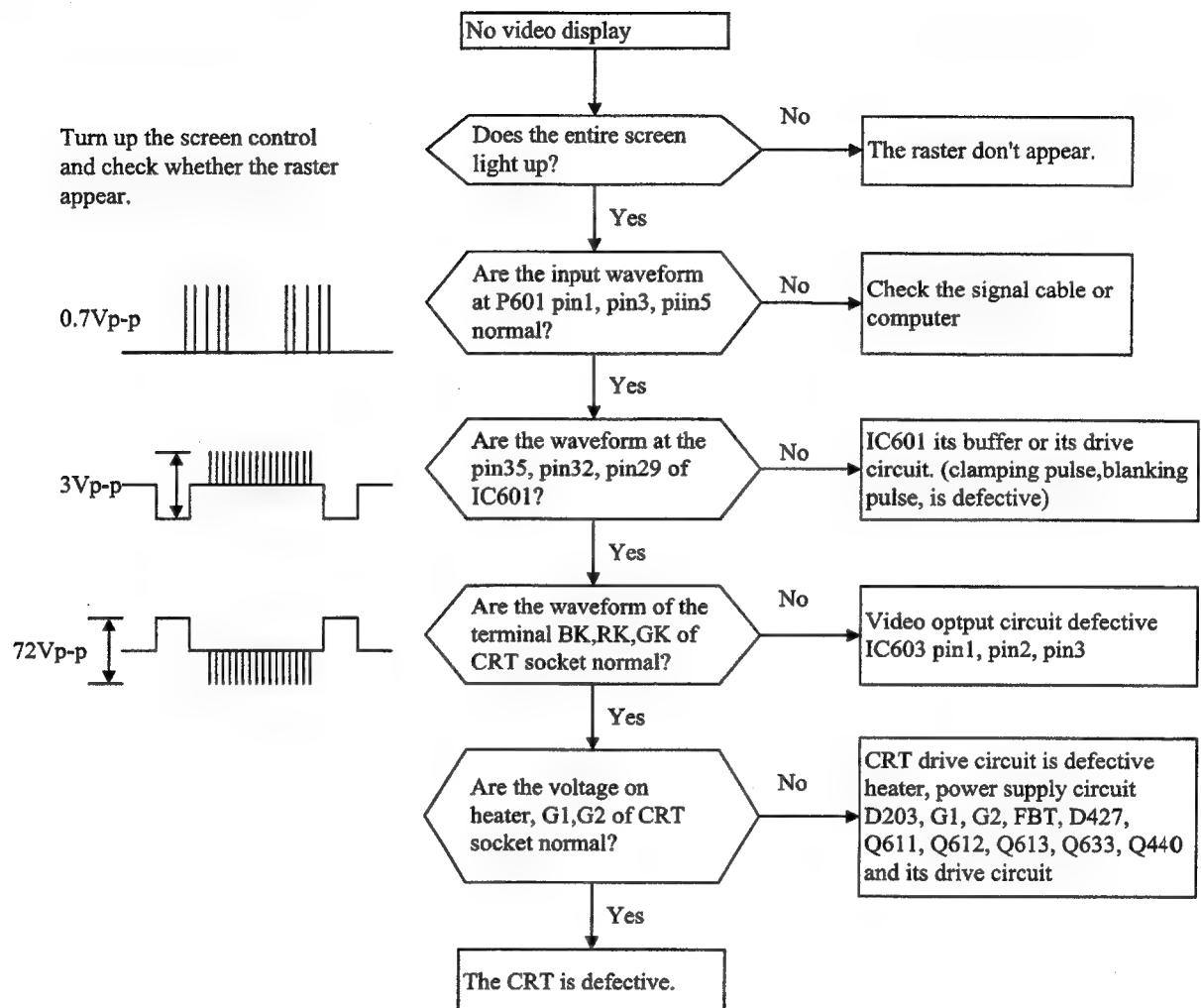
E95-1 trouble shooting flow chart

4. Vertical deflection is defective



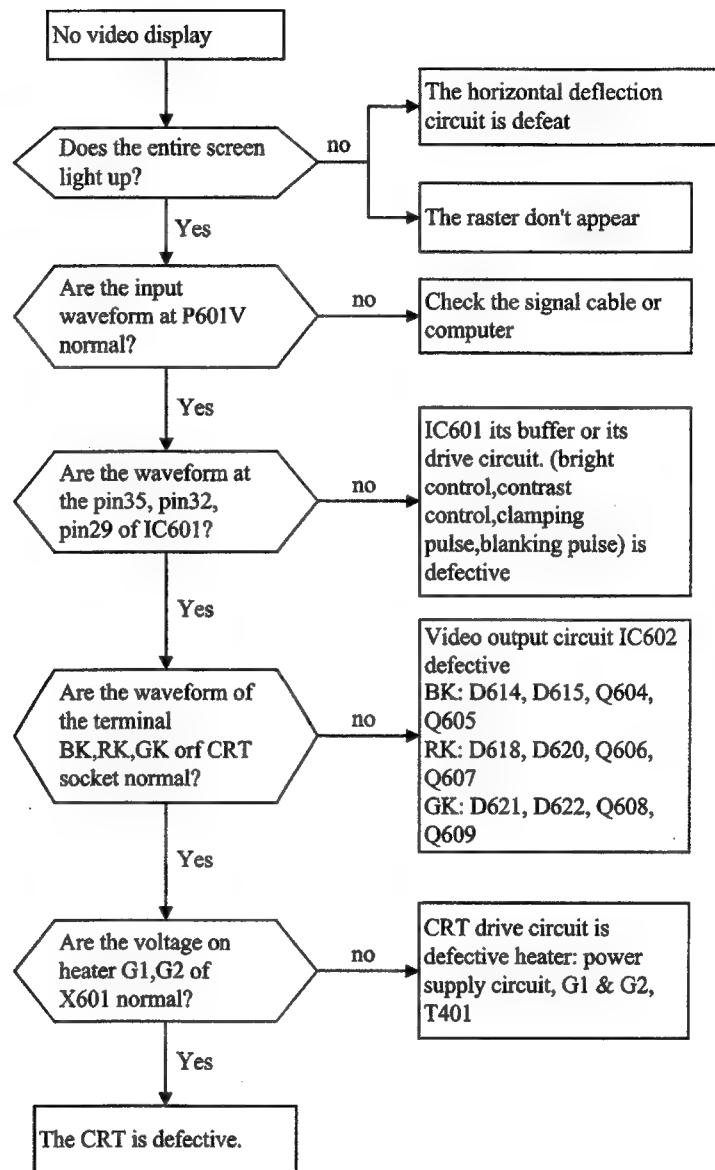
E95-1 trouble shooting flow chart

5. Video is defective



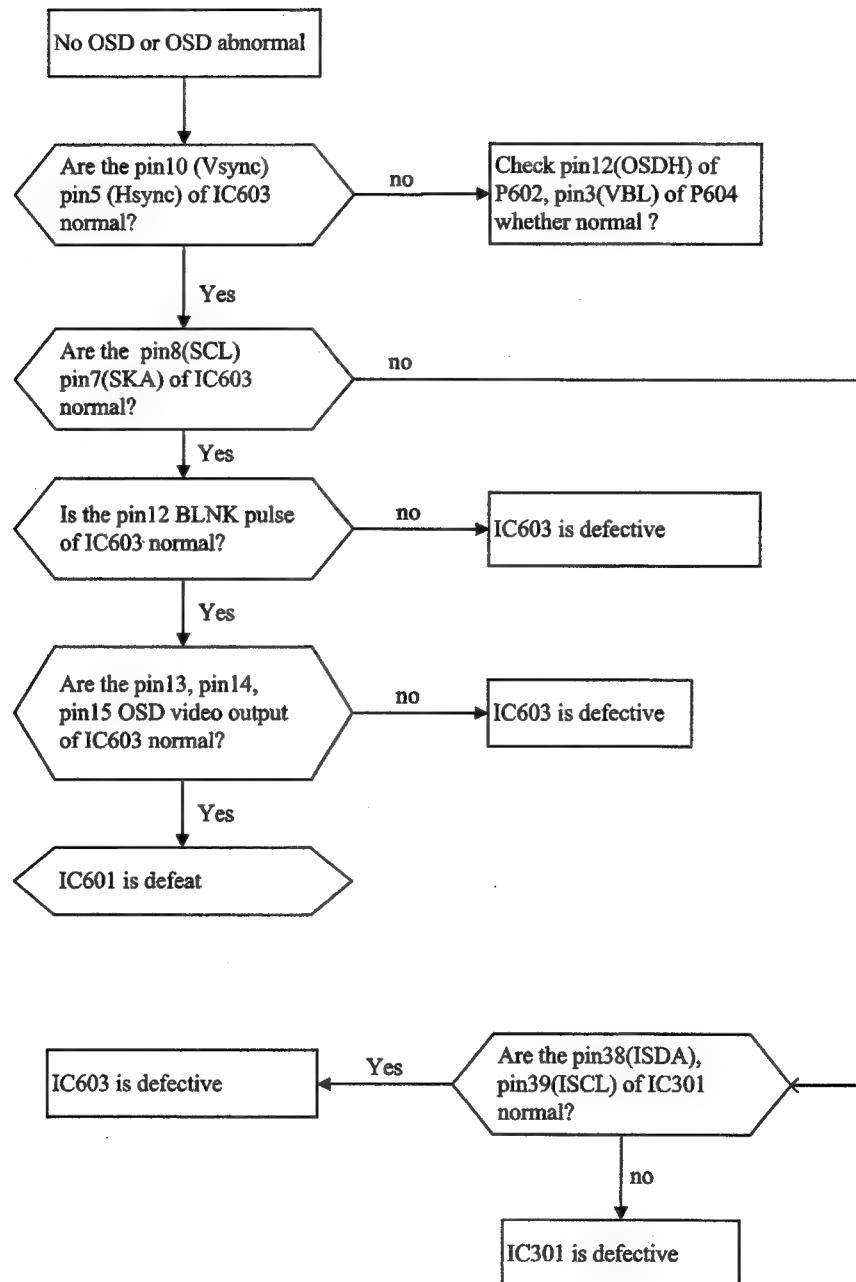
6. One Color missing

turn up the screen control
and check whether the raster
appear.



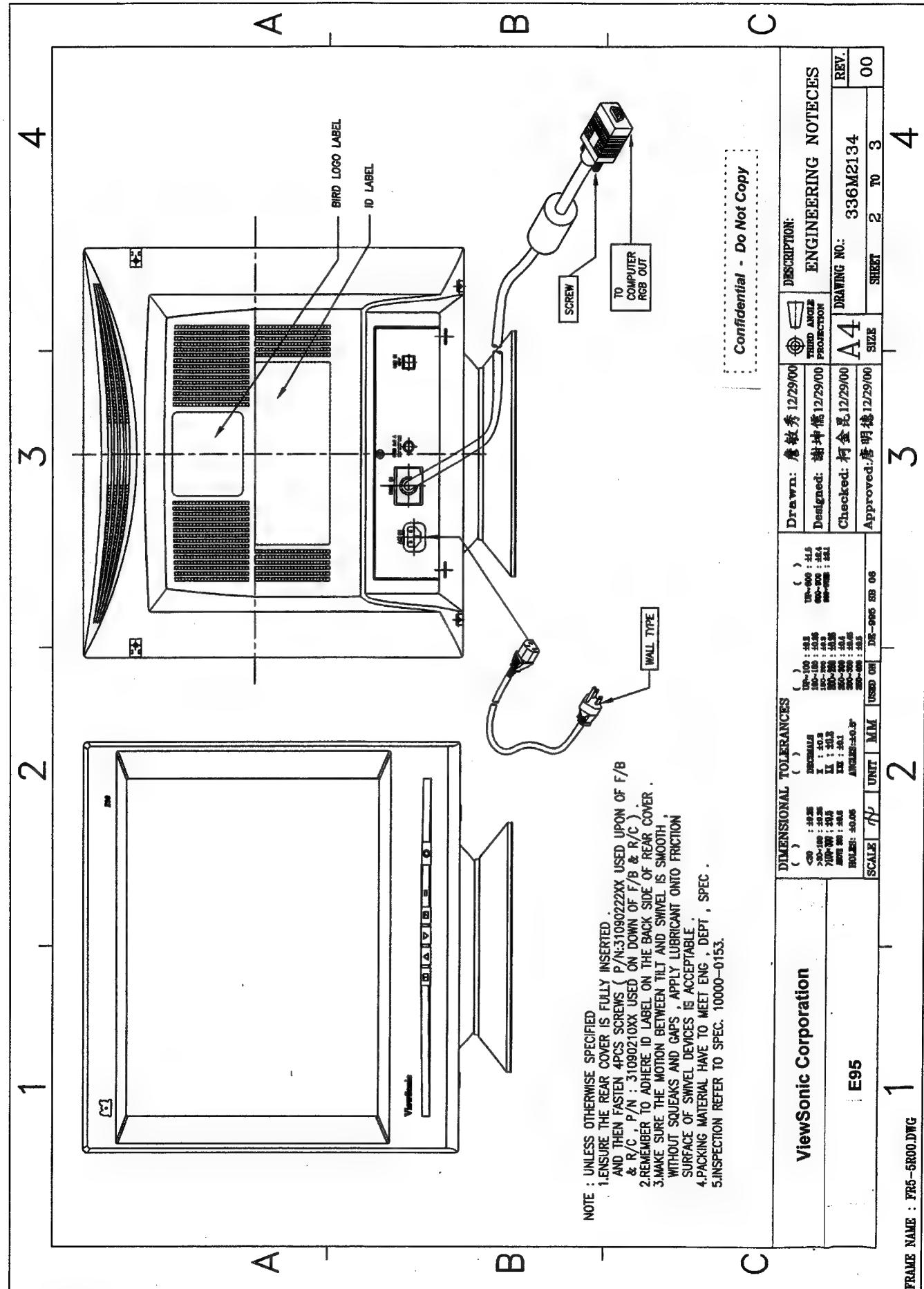
E95-1 trouble shooting flow chart

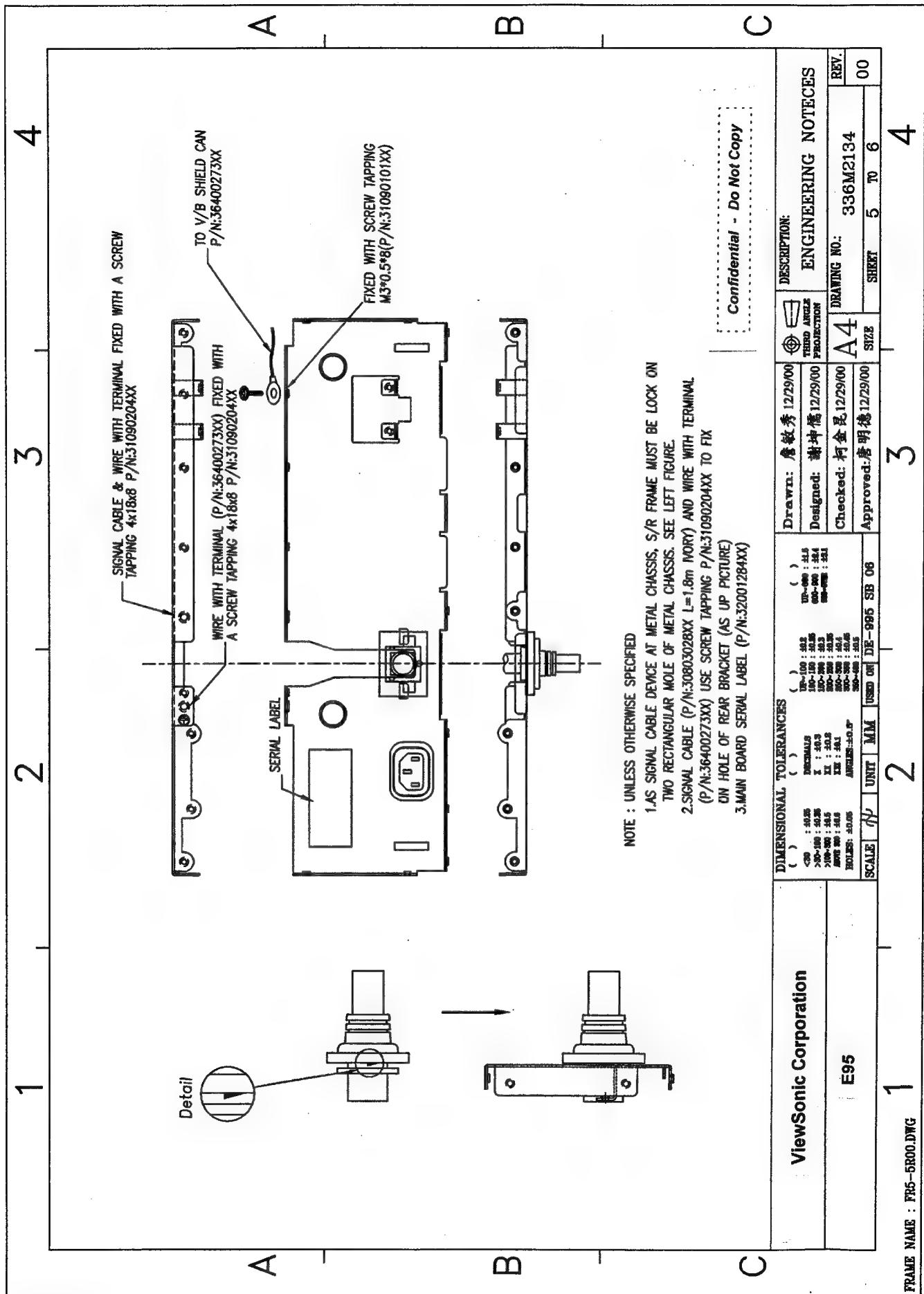
7. OSD is Defective



7. Mechanical assembly

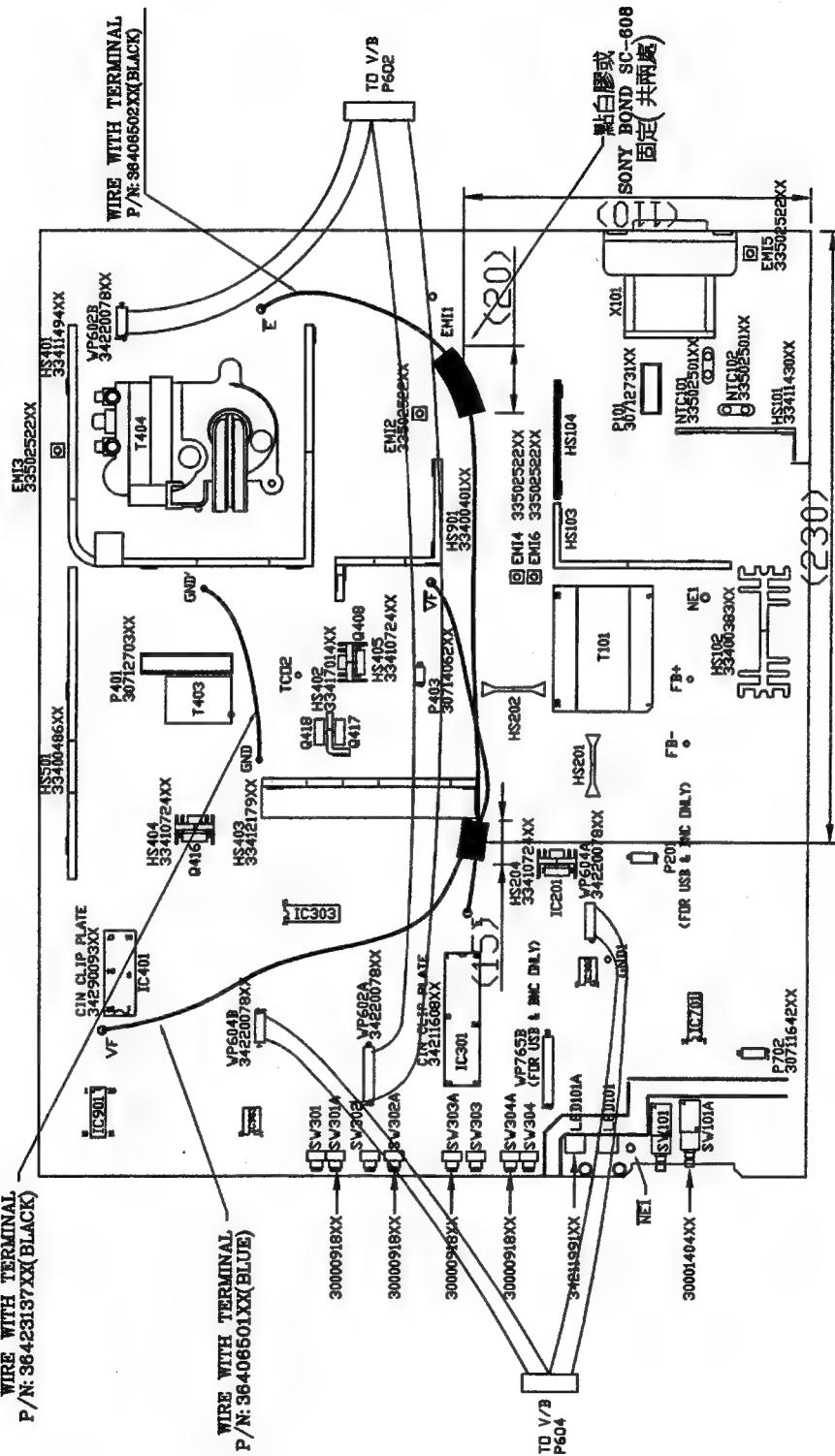
1. E95-1 assembly diagram





MAIN BOARD ASS'Y

WIRE WITH TERMINAL
P/N: 36423137XX(BLACK)



FRAME NAME : FR5-5R00.DWG

2

4

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6

4

3

2

1

MOUNTING 5 RIVETS
ON FBT T404, PIN: 1, 2, 5, 6, 10.

NOTE : UNLESS OTHERWISE SPECIFIED

1. MAIN BOARD

之零件

之位置

如下:

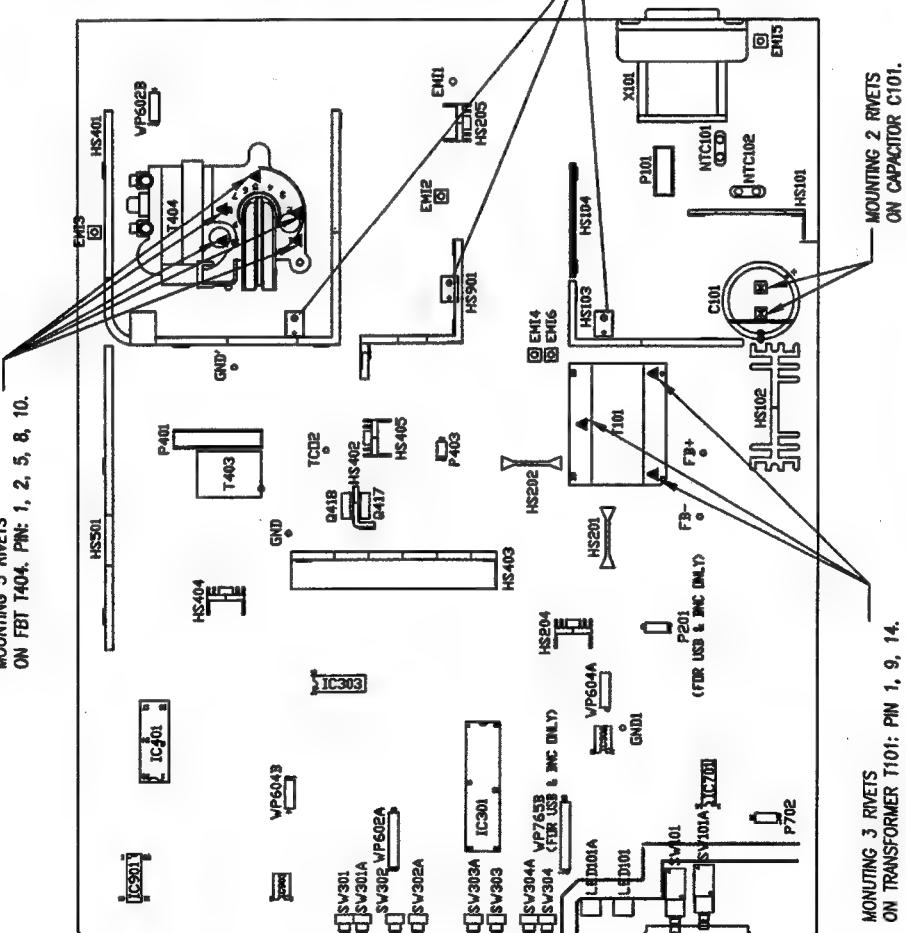
(a) : TRANSFORMER T101 ≥ PIN 1,9,14 共三脚

(b) : FBT T404 ≥ PIN 1,2,5,8,10 共五脚

(P/N:33501419XX)

(c) : CAPACITOR C101 2PINS 共兩脚

(P/N:33501411XX)

2.AC SOCKET 安装在 MAIN BOARD X101, 考虑位孔需
之底板厚度, 以推拉方式 不需 螺丝 SCREW (M3x0.5x10
P/N:31080103XX) 之上盖3.REAR BRACKET 安装在 MAIN BOARD 之板上, 其底板需比 MAIN BOARD
之厚度大, 其中 2 块 (3x0.5x10 P/N:31080103XX) 与一
块 AC SOCKET & MAIN BOARD 之板上, 另二块 (3x0.5x8 P/N:31080101XX)
直接由 MAIN BD 铆接 REAR BRACKET.4.WHEN INSERTING THE HS401 & HS501 REMEMBER TO FIX
THEM TOGETHER WITH SCREW P/N:31003010XX AT FIRST
AND THEN TO TWIST THE HS401 & HS501 6 PCS DEEP PIN
ON THE SOLDERSIDE OF PCB BEFORE WAVE SOLDERING.

A

B

C

4

3

2

1

MOUNTING 3 RIVETS
ON TRANSFORMER T101: PIN 1, 9, 14.MOUNTING 2 RIVETS
ON CAPACITOR C101.

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MOUNTING 5 RIVETS
ON FBT T404, PIN: 1, 2, 5, 6, 10.

C

		DIMENSIONAL TOLERANCES			DRAWN BY: 李敏秀 12/29/00		REV.: 00		DESCRIPTION: 第三脚		
		()	()	()	TH-100 : ±0.05	TH-400 : ±0.05	TH-600 : ±0.05	TH-800 : ±0.05	TH-1000 : ±0.05	TH-1200 : ±0.05	TH-1400 : ±0.05
E95	SCALE	吋	MM	UNIT	1.00	2.00	3.00	4.00	5.00	6.00	7.00
					±0.05	±0.05	±0.05	±0.05	±0.05	±0.05	±0.05
					MAX: 1.05	MAX: 2.05	MAX: 3.05	MAX: 4.05	MAX: 5.05	MAX: 6.05	MAX: 7.05
					MIN: 0.95	MIN: 1.95	MIN: 2.95	MIN: 3.95	MIN: 4.95	MIN: 5.95	MIN: 6.95
					AUDIO: ±0.05	AUDIO: ±0.05	AUDIO: ±0.05	AUDIO: ±0.05	AUDIO: ±0.05	AUDIO: ±0.05	AUDIO: ±0.05

FRAME NAME : FR6-5R00.DWG
1

4

VIDEO BOARD ASSY

4

3

2

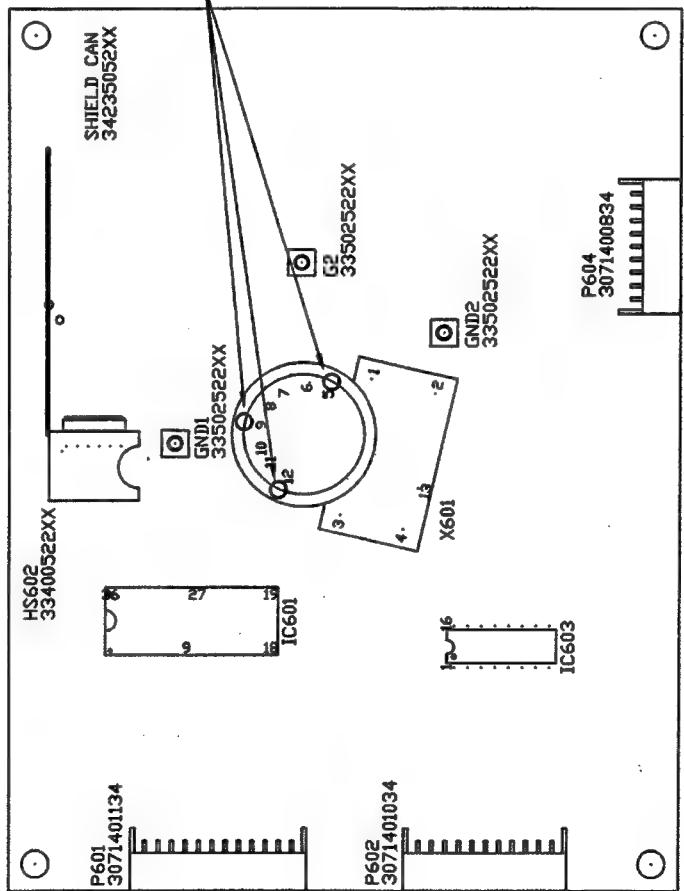
1

NOTE : UNLESS OTHERWISE SPECIFIED

1. VIDEO BOARD 附件打釘之位置如下:

(a) :CRT SOCKET ≥ PIN 5,9,12 共三顆
(P/N:33501419XX)

MOUNTING 3 RIVETS
ON CRT SOCKET. PIN: 5,9,12



A

B

C

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C

DIMENSIONAL TOLERANCES		DRAWN: 12/29/00		DESCRIPTION: 角度	
		THIRD ANGLE PROJECTION		ENGINEERING NOTES	
<50 : ±0.05	DETAILED	10~150 : ±0.2	150~300 : ±0.5	Designed: 蔡坤儒 12/29/00	REV.
200~400 : ±0.5	DETAILED	300~400 : ±0.5	400~500 : ±0.5	Checked: 蔡勝義 12/29/00	00
MIN. 100 : ±0.5	DETAILED	500~600 : ±0.5	600~700 : ±0.5	DRAWING NO.: A4	A4
MAX. 100 : ±0.5	DETAILED	700~800 : ±0.5	800~900 : ±0.5	Approved: 王文彬 12/29/00	336M2134
BRIDGE : ±0.05	AMBIENT: ±0.05	900~1000 : ±0.5	1000~1100 : ±0.5	SIZE	8 10 9
SCALE: 1/4	UNIT: MM	USED ON: D/E-995 SB 06			

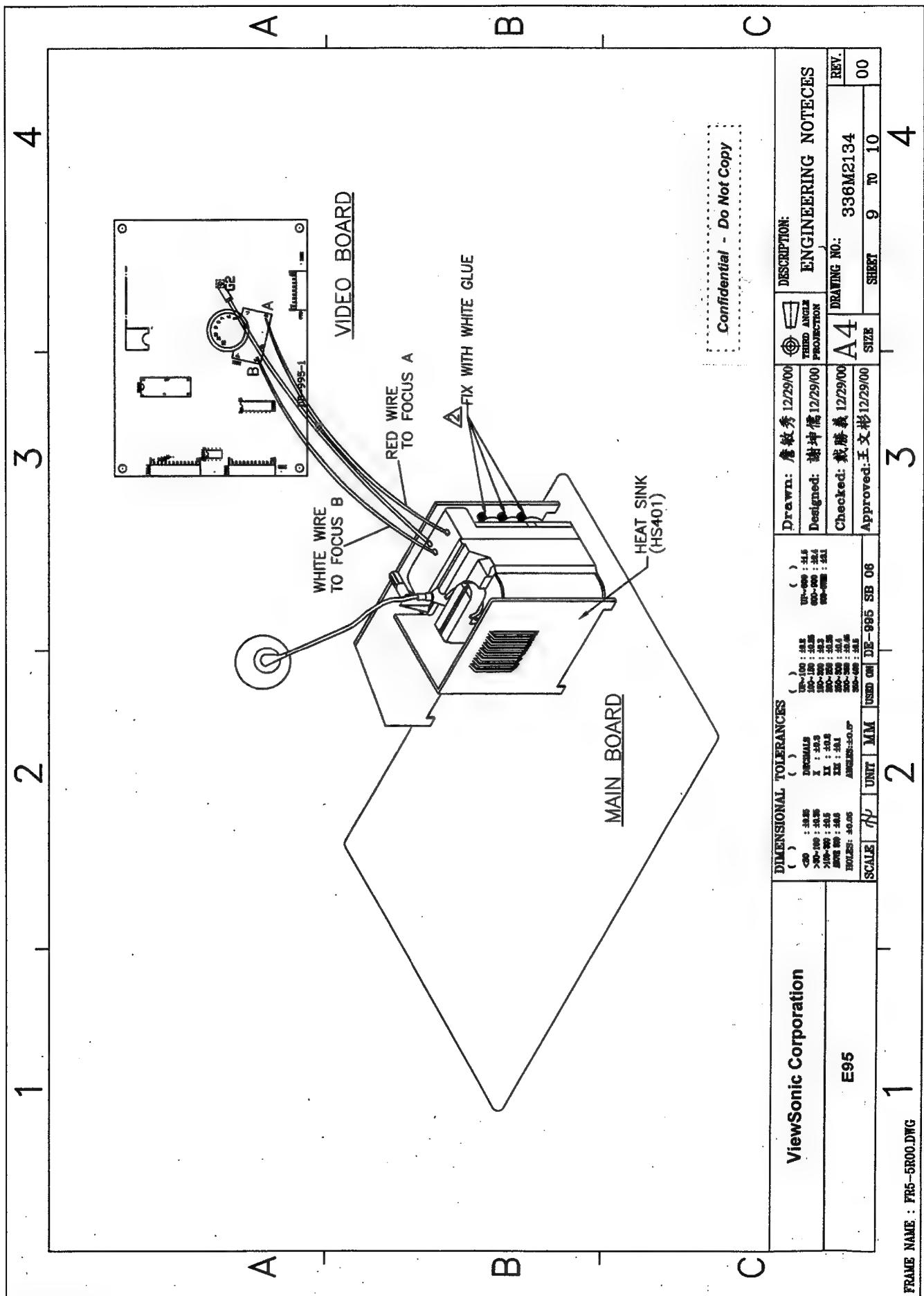
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3

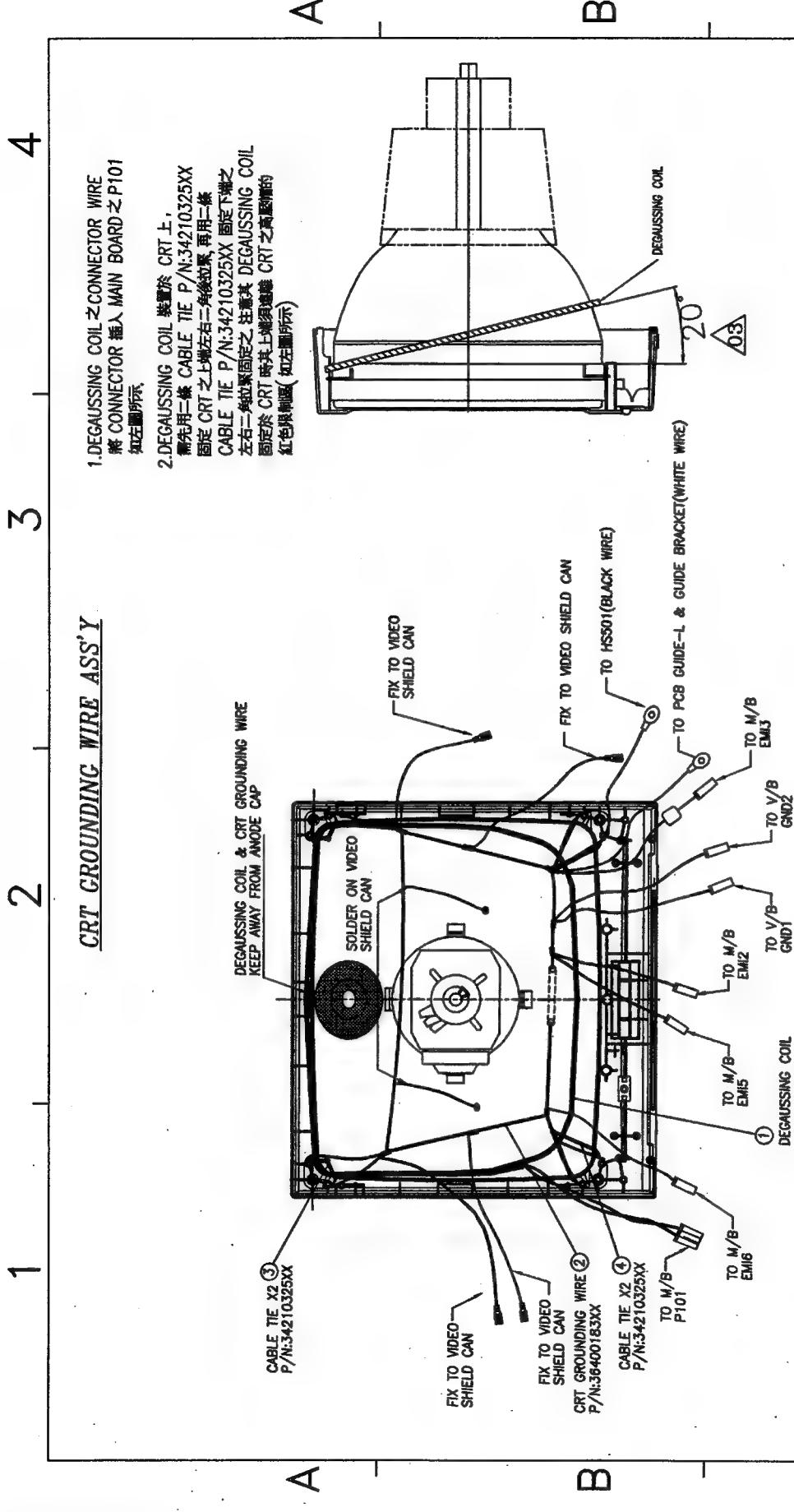
2

1

FRAME NAME : F05-5R00.DWG



CRT GROUNDING WIRE ASS'Y

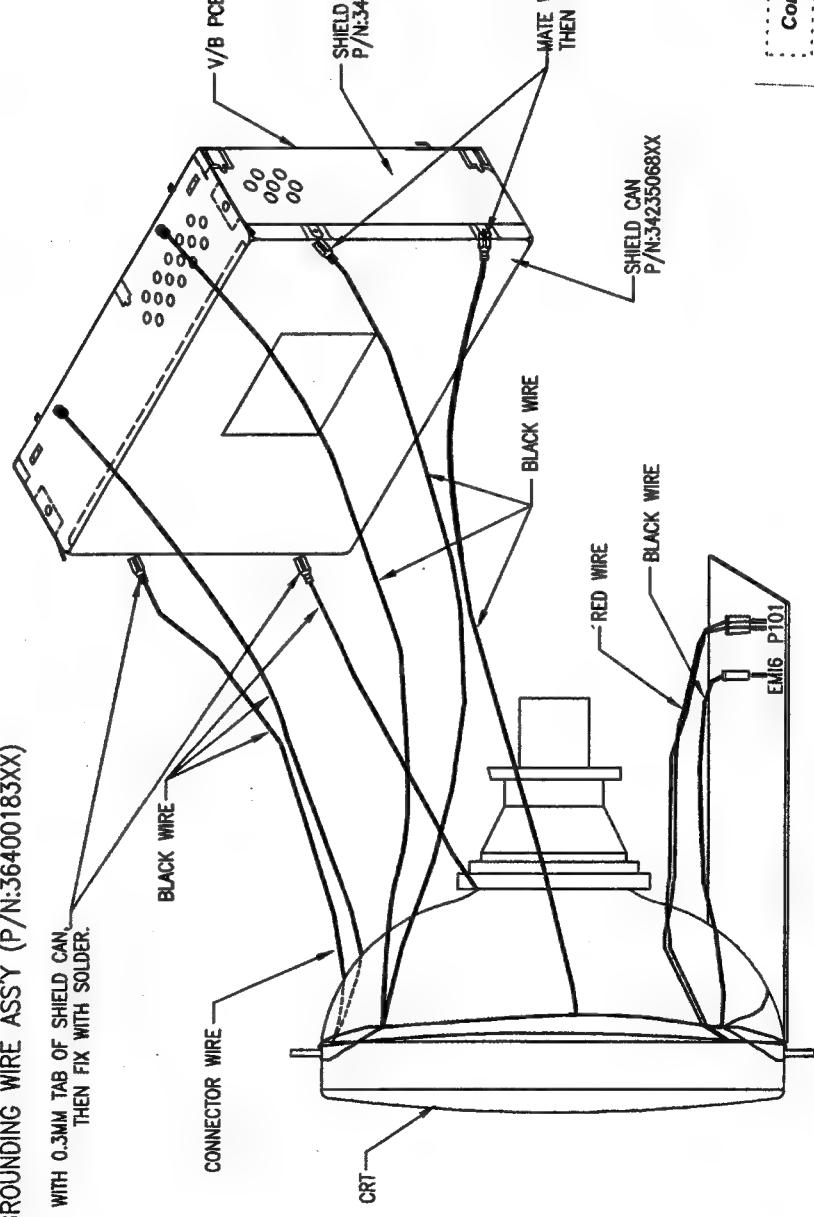


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ViewSonic Corporation		DIMENSIONAL TOLERANCES ()		DRAWN: 范敏秀 12/29/00		DESCRIPTION: 第三角度	
E95		C10 : ±0.05 C10~C10 : ±0.05 W10~W10 : ±0.05 W10~W10 : ±0.05 W10~W10 : ±0.05 W10~W10 : ±0.05		X1 : ±0.1 X1 : ±0.1 X1 : ±0.1 X1 : ±0.1 X1 : ±0.1 X1 : ±0.1		Designed: 江政道 12/29/00	
		W10~W10 : ±0.05 W10~W10 : ±0.05 W10~W10 : ±0.05 W10~W10 : ±0.05 W10~W10 : ±0.05 W10~W10 : ±0.05		Checked: 博裕元 12/29/00		NOTICES: ENGINEERING NOTES	
		ANGLE : ±0.05°		Approved: 唐明德 12/29/00		REV.: 00	
SCALE: 1/4	UNIT: MM	USED ON: DS-995 SB 06	SHEET: 13	SIZE: 10	14		

CRT GROUNDING WIRE & VIDEO SHIELD CAN ASS'Y RIGHT SIDE
E90-2G EMI SOLUTION

CRT GROUNDING WIRE ASS'Y (P/N:36400183XX)
 MATE WITH 0.3MM TAB OF SHIELD CAN
 THEN FIX WITH SOLDER.



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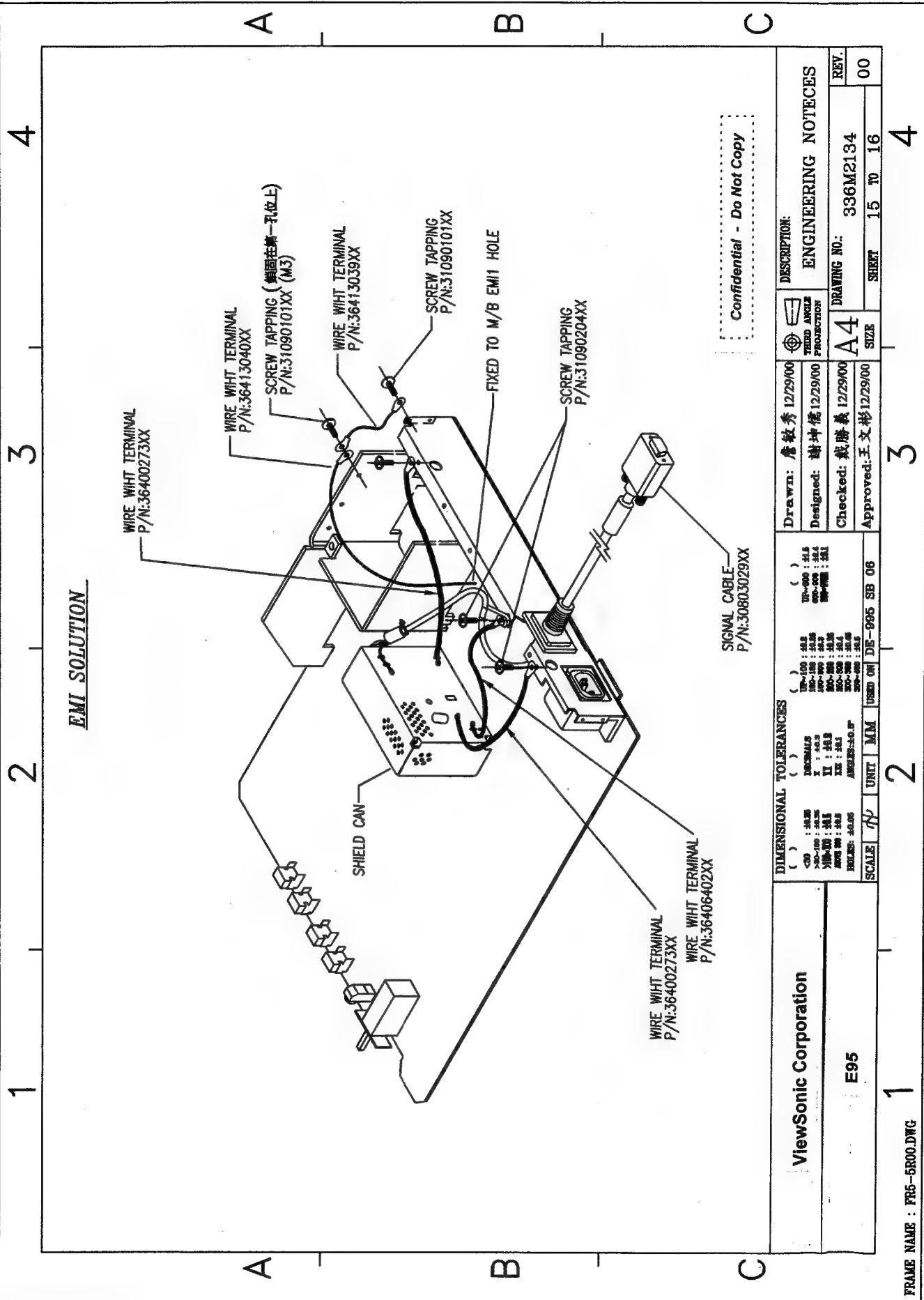
C

DIMENSIONAL TOLERANCES		DRAWN BY: 李敏秀 12/29/00		DESCRIPTION: 第三角度 PROJECTION	
Φ20	+0.05	Φ20	-0.05	Φ20	Φ20 : 34.56
Φ20-18	+0.05	X	+0.05	Φ20-18 : 34.16	Φ20-18 : 34.16
Φ18-16	+0.05	X	+0.05	Φ18-16 : 34.3	Φ18-16 : 34.3
Φ16-14	+0.05	X	+0.05	Φ16-14 : 34.36	Φ16-14 : 34.36
Φ14-12	+0.05	X	+0.05	Φ14-12 : 34.41	Φ14-12 : 34.41
Φ12-10	+0.05	X	+0.05	Φ12-10 : 34.46	Φ12-10 : 34.46
Φ10-8	+0.05	X	+0.05	Φ10-8 : 34.49	Φ10-8 : 34.49
Φ8-6	+0.05	X	+0.05	Φ8-6 : 34.52	Φ8-6 : 34.52
Φ6-4	+0.05	X	+0.05	Φ6-4 : 34.56	Φ6-4 : 34.56
Φ4-2	+0.05	X	+0.05	Φ4-2 : 34.61	Φ4-2 : 34.61
Φ2-1	+0.05	X	+0.05	Φ2-1 : 34.66	Φ2-1 : 34.66
ANGLE: ±0.5°					
SCALE: 1/10	INCH	UNIT: MM	USED: 08	DE-985 58 08	REV. 00

FRAME NAME : FRS-5R00.DWG 1

2

4



DE-995 SB 06 SCREW TORQUE LIST					
ASSEMBLY PARTS	SCREW DESCRIPTION	PART NO.	TORQUE Kgf.CM	REMARK	
FRONT BEZEL + REAR COVER	TAPPING SCREW 4x20x16 mm	31090210XX	10 ~ 18		
FRONT BEZEL + REAR COVER	TAPPING SCREW 4x20x35 mm	31090222XX	10 ~ 18		
CRT + FRONT BEZEL	TAPPING SCREW 5x1.6x25 mm	31090302XX	22 ~ 24		
HS501 + HS401	SCREW MACHINE M3x0.5x10 mm	31003010XX	5 ~ 10		
FRONT BEZEL + PCB GUIDE	SCREW TAPPING 4x20x16 mm	31090210XX	10 ~ 15		
GUIDE BRACKET + PCB GUIDE	SCREW MACHINE M3x0.5x12 mm	31050310XX	5 ~ 10		
CRT GROUNDING WIRE + HS501	SCREW MACHINE M3x0.5x8 mm	31003008XX	3 ~ 5		
WIRE WITH TERMINAL + HS401	SCREW MACHINE M3x0.5x10 mm	31003010XX	3 ~ 5		
HSET SINK + (IC501,Q904,D410,Q905,CR101,Q415,IC101,Q417,Q418, Q23,Q424,Q420,Q408,Q416,IC201,Q422,Q421,Q412,Q437)					
METAL BRACKET + PCB	TAPPING SCREW 3x0.5x8 mm	31090101XX	10 ~ 15		
METAL BRACKET + PCB + AC SOCKET	TAPPING SCREW 3x0.5x10 mm	31090103XX	10 ~ 15		
METAL BRACKET + SIGNAL CABLE + FG CABLE	TAPPING SCREW Ø4x8 mm	31090204XX	10 ~ 15		

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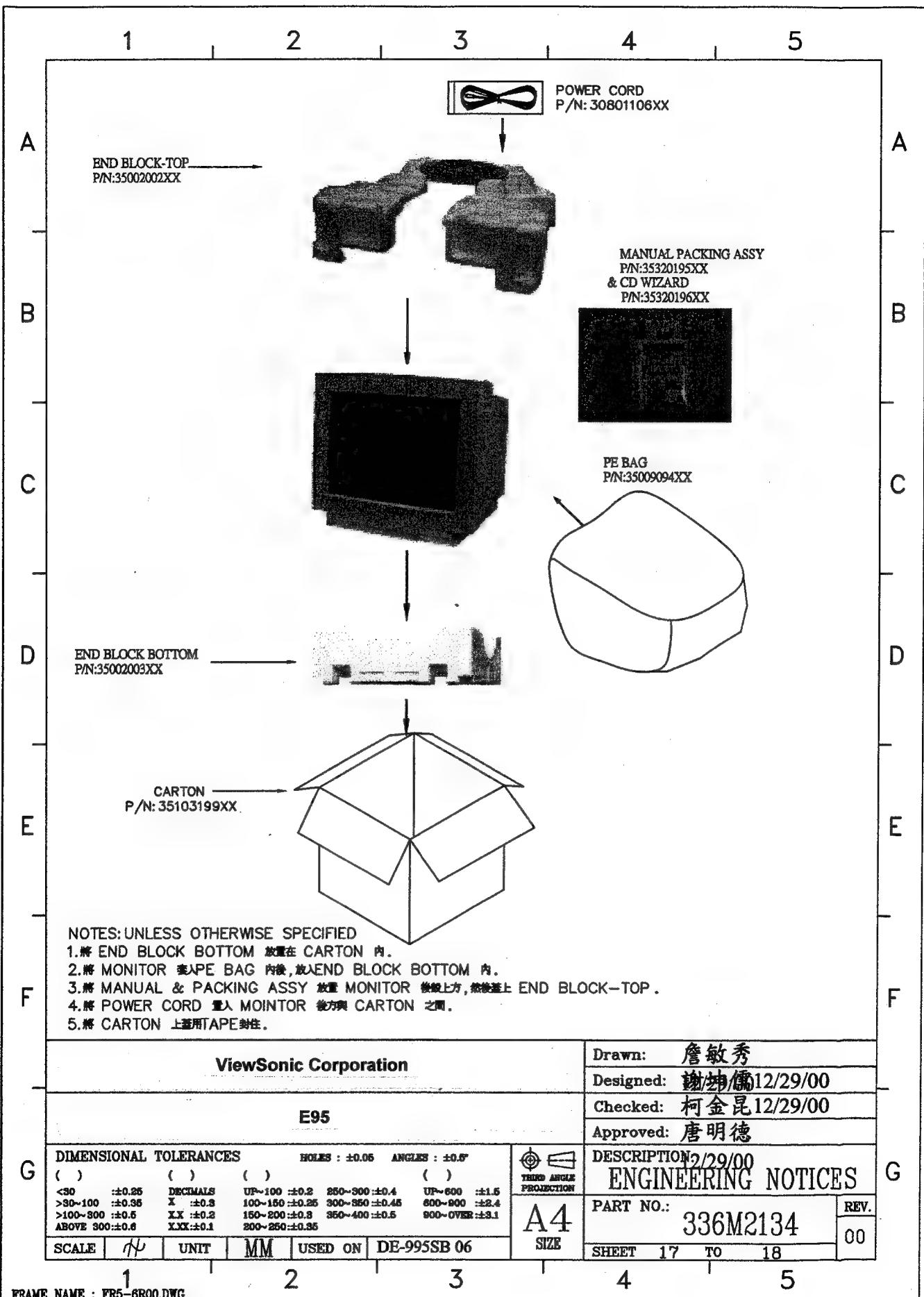
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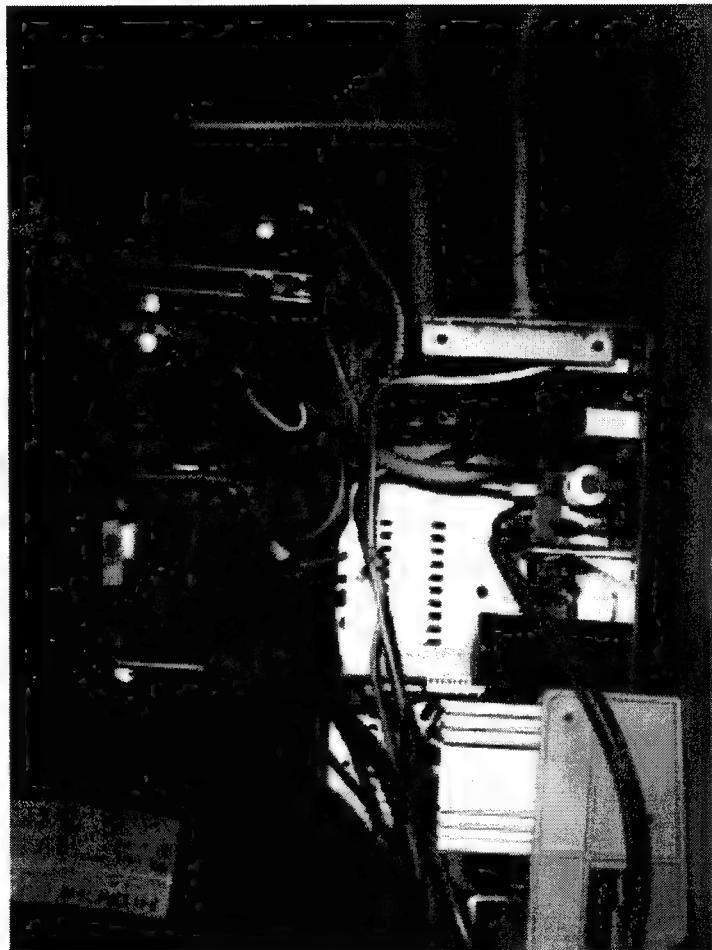
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2

7

FRAME NAME : FR5-5R00.DWG



E90-2G MPRII SOLUTION

A

B

C

Put the Focus wire under the CRT neck.
Don't use cable tie.

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C

ViewSonic Corporation		DIMENSIONAL TOLERANCES		DRAWN: 12/29/00		THIRD ANGLE PROJECTION		DESCRIPTION:	
<30	.1925	DECIMALS	.312	UP-.000	.313	UP-.000	.313	ENGINEERING NOTES	
200-300	.1925	X .103	.3125	.000-.000	.313	.000-.000	.313		
200-300	.105	X .312	.313	.000-.000	.313	.000-.000	.313		
ARMING WIRE	.316	X .312	.313	.000-.000	.313	.000-.000	.313		
HOLDS .1035		ANGLES >0° & 90°	.313	.000-.000	.313	.000-.000	.313		
SCALE	1/4	UNIT	MM	USED ON	DE-995 SB 06	APPROVED	12/29/00	DRAWING NO.	336M2134
								SHEET	19 70 20 00

4

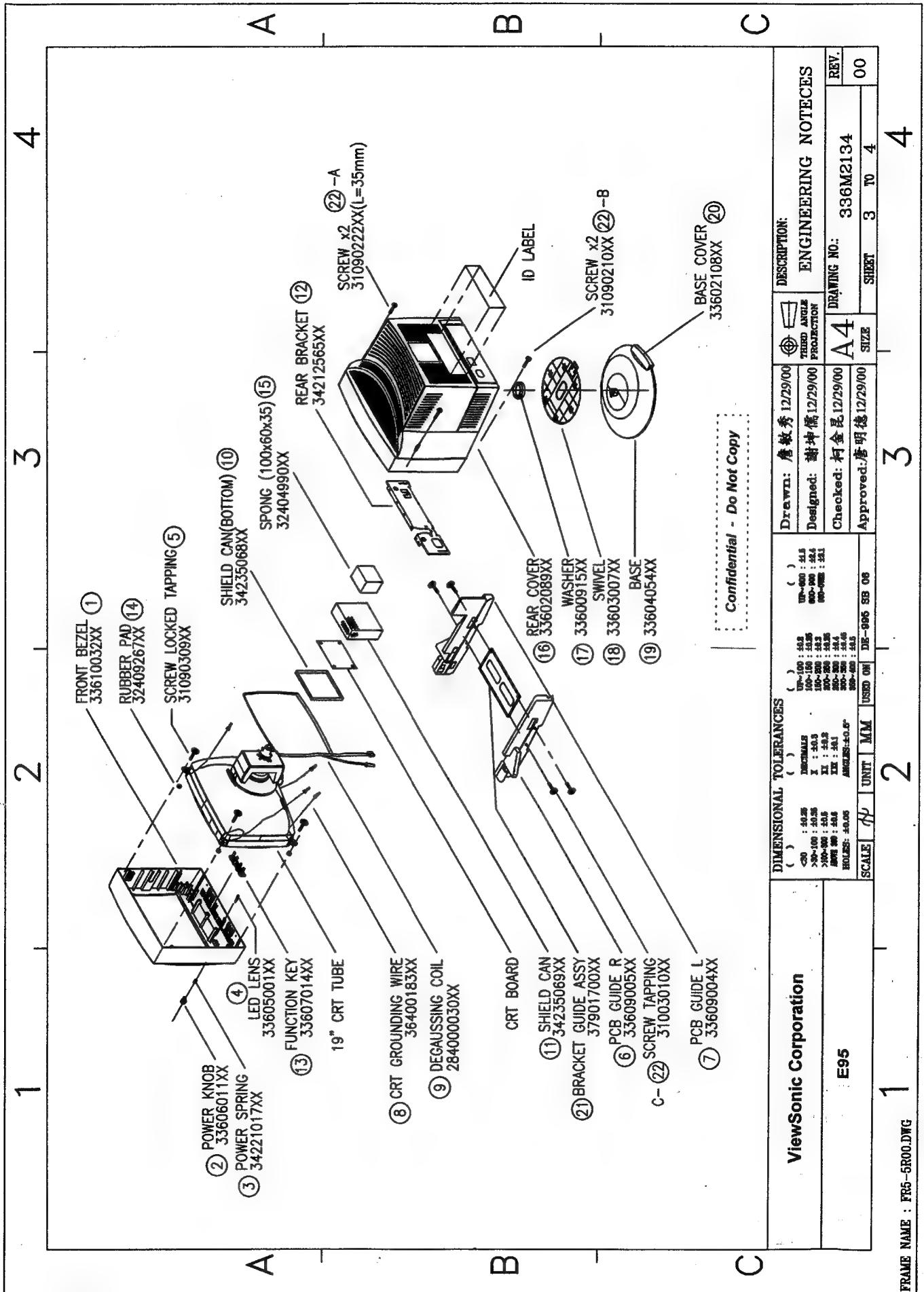
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2

1

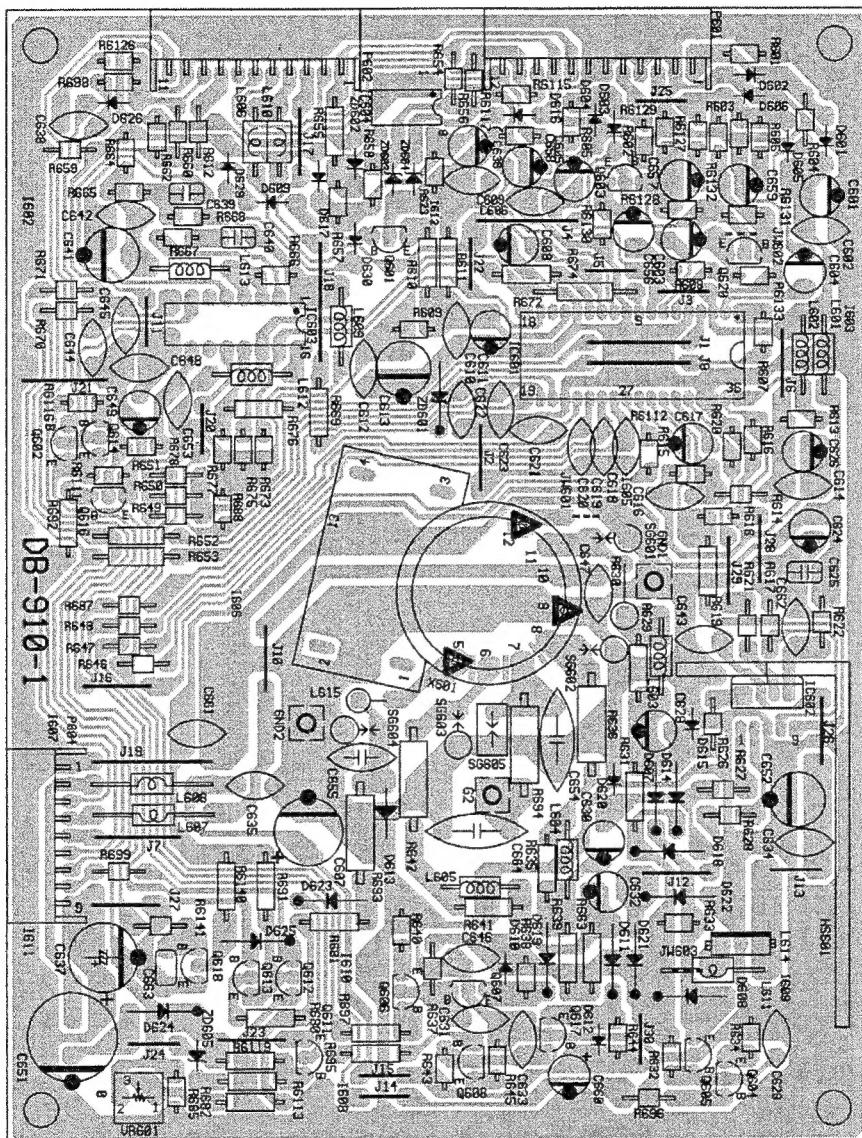
8. E95-1 Mechanical Parts List

		E95-1M	E95-1E
Item	Part Description	ViewSonic Part No.	ViewSonic Part No.
1	FRONT BEZEL	C-FP-0301-0752	C-FP-0301-0753
2	POWER KNOB	PL-NB-0707-0151	PL-NB-0707-0151
3	POWER SPRING	M-MS-0808-4932	M-MS-0808-4932
4	LED LENS	M-MS-0808-4929	M-MS-0808-4929
5	SCREW LOCKED TAPPING	M-SCW-0824-0395	M-SCW-0824-0395
6	PCB GUIDE - R	M-MS-0808-4931	M-MS-0808-6020
7	PCB GUIDE - L	M-MS-0808-4930	M-MS-0808-6019
8	CRT GROUNDING WIRE	M-WR-0828-0377	M-WR-0828-0377
9	DEGAUSSING COIL	E-L-0407-1108	E-L-0407-1108
10	SHIELD CAN BOTTOM	M-MS-0808-4884	M-MS-0808-4884
11	SHIELD CAN TOP	M-MS-0808-6333	M-MS-0808-6333
12	REAR BRACKET	M-MS-0808-5757	M-MS-0808-5757
13	FUNCTION KEY	PL-FK-0709-0040	PL-FK-0709-0040
14	RUBBER PAD	PL-PD-0714-0021	PL-PD-0714-0021
15	Sponge	M-MS-0808-4825	M-MS-0808-4825
16	REAR COVER	C-BC-0302-0294	C-BC-0302-0303
17	WASHER	M-MS-0808-3068	M-MS-0808-3068
18	SWIVEL	PL-TB-0717-0080	PL-TB-0717-0080
19	BASE	PL-PS-0715-0115	PL-PS-0715-0115
20	BASE COVER	M-CV-0830-0189	M-CV-0830-0189
21	GUIDE BRACKET ASS'Y	M-MS-0808-5759	M-MS-0808-5759
		M-MS-0808-5527	M-MS-0808-5527
		M-MS-0808-5756	M-MS-0808-5756
22	SCREW	M-SCW-0824-0394	M-SCW-0824-0394
		M-SCW-0824-0414	M-SCW-0824-0414
		M-SCW-0824-0004	M-SCW-0824-0004



9. PCB layout diagram

- 1. Mother board**
- 2. Video board**



DRAWING NO.:	DB-1-M10	REV:	1
USED:	DB-91041	REV:	1
MADE BY:	BETTY LEE	DATE:	05/08/2000

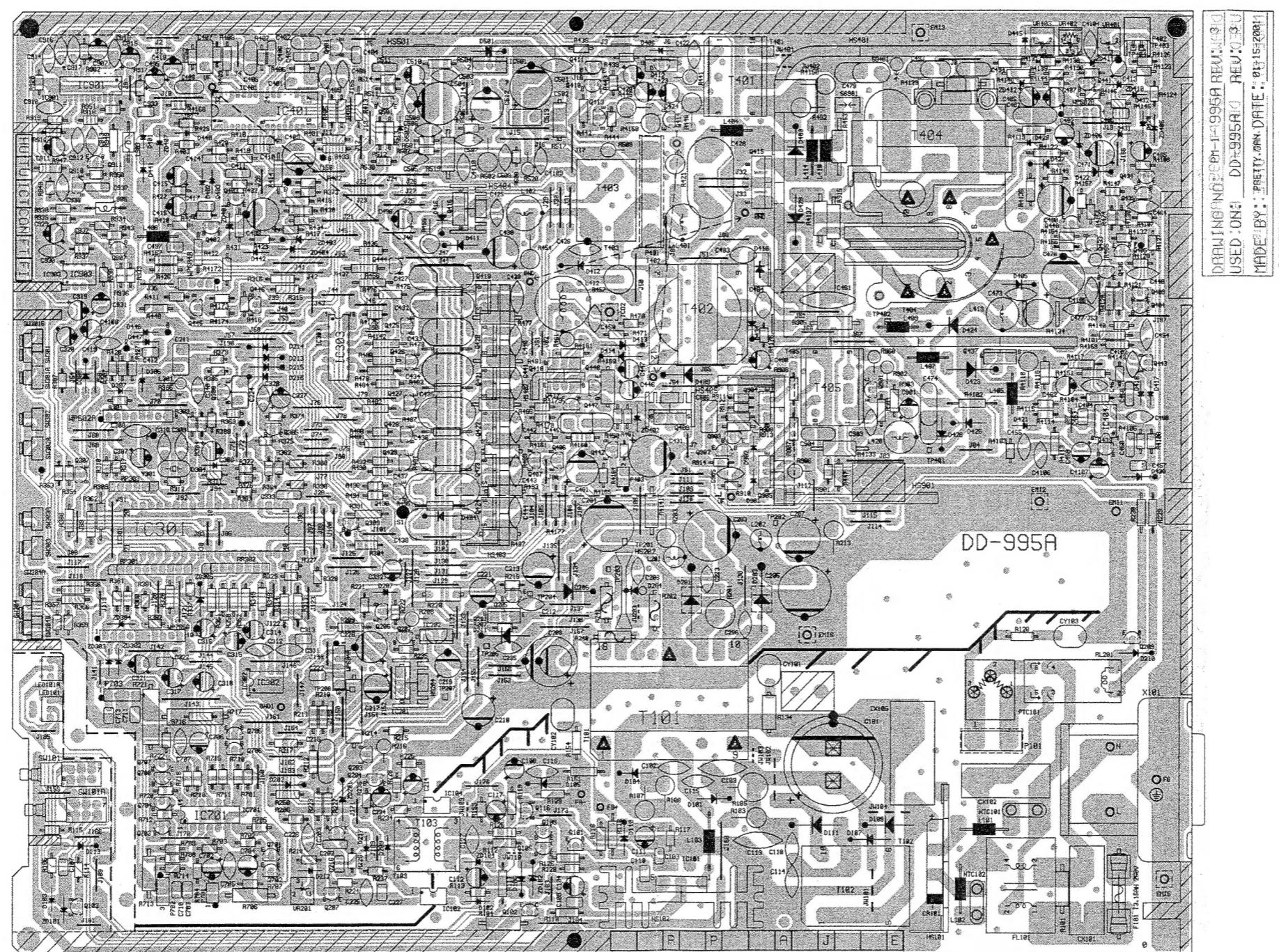
COMPONENT SIDE NUMBER

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E95-1 Recommended spare parts list

10. E95-1 Recommended spare parts list

<u>Location</u>	<u>ViewSonic Part No.</u>	<u>Description</u>
IC101	E-IC-0401-1874	KA2S1265
IC102, IC104	E-IC-0401-1873	TLP721F(D4-GR)
IC203	E-IC-0401-1356	TL431CLP-RA
IC201	E-IC-0401-0621	MC7812CT
IC202	E-IC-0401-0403	XC62AP5002LH
IC301	E-IC-0401-1877	IC 8BIT MASK MICRO
IC302	E-IC-0401-1998	M24C16-BN6
IC303	E-IC-0401-1876	MC14094BCP
IC401	E-IC-0401-0168	TDA4856
IC501	E-IC-0401-0005	TDA8172
IC404	E-IC-0401-1125	UC3843AN
IC901	E-IC-0401-0646	M52723ASP
IC601	E-IC-0401-1264	M52743BSP
IC602	E-IC-0401-1818	LM2435
IC603	E-IC-0401-1835	MTV021N-25
IC604	E-IC-0401-1793	ST24LC21BB6
R102	E-R-0405-3364	RES FUSING MF 1W.22 J
R241	E-R-0405-0923	RES FUSING MF 1/2W.22 J
R4122, R4136, R4137	E-R-0405-0935	RES FUSING MF 1/2W 2.2 J
R4133	E-R-0405-5968	RES FUSING MF 1W .33 J
R4141	E-R-0405-5354	RES FUSING MF 1W 1 J
Q102, Q901	E-Q-0402-1084	MPSA44M
Q205	E-Q-0402-1228	2SC2655Y TEP2
Q201	E-Q-0402-1176	2SB857C
Q408	E-Q-0402-0725	2SJ449
Q412, Q420, Q421, Q422, Q423, Q424	E-Q-0402-1258	IRFS630A
Q416, Q417, Q905	E-Q-0402-0136	2SD669AWC
Q418, Q904	E-Q-0402-0119	2SB649AC
Q415	E-Q-0402-1081	2SC5411(HFE)
Q437	E-Q-0402-0020	SSSION60A
Q604, Q606, Q608, Q611, Q903	E-Q-0402-1207	BF422 (TE2.T)
Q440, Q605, Q607, Q613, Q617, Q902	E-Q-0402-1208	BF423 (TE2.T)
D201, D203	E-D-0403-1399	RG4C LFL1
D204, D423	E-D-0403-0242	RG4A-LFJ6
D409	E-D-0403-1571	RG2
D410	E-D-0403-1572	BY459X-1500
D424	E-D-0403-0920	BYM26C
D427	E-D-0403-0912	UF4006
R4135, R4169	E-D-0403-1005	UF4004
D413, D414, D422	E-D-0403-0913	UF4003 TAPING



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E95-1 Recommended spare parts list

<u>Location</u>	<u>ViewSonic Part No.</u>	<u>Description</u>
T101	E-T-0408-0335	SMT-42V-866A
T403	E-L-0407-1239	LINEAR COIL 4.9uH K 4P
T401	E-T-0408-0336	DT-E22-02
T402	E-T-0408-0337	19A-9007 REV .A
T404	E-FBT-0406-0219	FBT 19" 31 KHz - 106KHz
T405	E-T-0408-0338	CE-22V-02
Y301	E-X-0415-0055	CRYSTAL 8MHz 30PPM 30PF
F1O1	E-FS-0410-0070	FUSE TSC 3.15A UL SEM PIG
LED	E-D-0403-1668	YEL/GRN 5mm 3 PIN
T102 (For PFC)	E-T-0408-0377	19A-0012B
X601	M-MS-0808-4396	CRT SOCKET
	A-VC-0101-0045	SIGNAL CABLE L=1800 BLACK
E95-1M/1E	P-FM-0602-0527	END BLOCK - TOP
E95-1M/1E	P-FM-0602-0528	END LOCK - BOTTOM
E95-1M/1E	M-MS-0808-6332	MANUAL PACKING ASS'Y
E95-1M/1E	A-CD-E95	CD-ROM ASS'Y
E95-1M/1E	M-MS-0808-6083	COLOR KEY
E95-1M/1E	A-UG-0107-0436	USER'S GUIDE
E95-1M/1E	M-LB-0813-0468	WARNING LABEL
E95-1M/1E	M-MS-0808-6331	PE BAG 225mm*12mm*330mm T=0.06mm
E95-1M/1E	M-MS-0808-4954	PE BAG 1010mm*900mm T=0.045mm
E95-1M/1E	B-VB-0202-0171	VIDEO BOARD ASS'Y
E95-1M/1E	C-BS-0303-0243	SWIVEL BASE ASS'Y ABS 94HB #Y0-
E95-1M/1E	M-CV-0830-0190	SCREW COVER
E95-1E	C-FP-0301-0750	FRONT BEZEL ABS + PC
E95-1E	C-BC-0302-0308	REAR COVER ABS + PC
E95-1E	P-BX-0601-0535	CARTON
E95-1E	B-MB-0201-0515	MAIN BOARD ASS'Y
E95-1E	E-CRT-0409-0103	0.26mm 95KHz M46QCE261X112 (TCO)
E95-1M	C-FP-0301-0749	FRONT BEZEL ABS 94-5V #Y0-487V
E95-1M	C-BC-0302-0317	REAR COVER ABS 94-5V #Y0-487V
E95-1M	P-BX-0601-0534	CARTON
E95-1M	B-MB-0201-0514	MAIN BOARD ASS'Y
E95-1M	E-CRT-0409-0467	0.26mm 95KHz M46QCE261X112 (A)